

**Rhode Island Department of Environmental Management
Division of Planning and Development**



Public Access to Shoreline Recreational Fishing in Narragansett Bay

Volume I

**Evaluation of the
Old Jamestown Bridge Site**

North Kingstown, Rhode Island



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1.0 STUDY OVERVIEW

As the Ocean State's most prominent natural feature, Narragansett Bay is one of the greatest outdoor recreation resources of the State of Rhode Island. Its vast near-shore waters afford residents and visitors a multitude of recreational opportunities, including swimming, beach-going, boating, and fishing. The Bay also serves as a significant economic generator for Rhode Island through recreation, tourism, commercial fisheries, and other associated industries.

Although the State has over 400 miles of coastline along Narragansett Bay and Rhode Island Sound, there are currently no facilities in Rhode Island built for the purpose of providing the public access to shoreline recreational fishing in Narragansett Bay. Persons lacking boat access to the Bay typically gravitate to shoreline sites known to offer a quality fishing experience, which are those offering a high likelihood of encountering and catching species of recreational value such as striped bass, bluefish, etc. In addition to natural features such as beaches and points, resourceful recreational anglers will often make use of man-made shoreline features (including docks, jetties, bridges, and piers). While not built or designed for such purpose, these facilities often provide enhanced access to enjoy angling within bay waters.

As part of its directive to further maintain, develop, and promote outdoor recreational opportunities in the State, the Rhode Island Department of Environmental Management (RIDEM) is conducting a comprehensive evaluation of shoreline recreational fishing in Narragansett Bay. The intent of this evaluation is to inventory existing shore-based recreational fishing access throughout Narragansett Bay, to assess the State's need and demand for enhanced recreational fishing opportunities, and to provide recommendations and guidance for future recreational fishing development initiatives by the State.

The first phase of this evaluation involves an assessment of the Old Jamestown Bridge Site in North Kingstown, which is located along the westerly shore of the West Passage of Narragansett Bay. This site is located at the west landing of the Old Jamestown Bridge (Bridge No. 400), which was closed to traffic in 1992 upon completion of the replacement structure, the Jamestown-Verrazano Bridge. The location of the Old Jamestown Bridge Site within Narragansett Bay is depicted in Figure 1.

During the design and construction of the Jamestown-Verrazano Bridge, it was originally envisioned that a portion of the Old Jamestown Bridge would not be demolished and would remain for future development as a public recreational fishing pier and park. In 1987, Rhode Island General Law § 24-12-51.1 was passed, directing (a) the Rhode Island Department of Transportation (RIDOT) to retain a portion of the North Kingstown side of the Old Jamestown Bridge for use as a public fishing pier and (b) the RIDEM to develop and maintain a park on State-owned land adjacent to the bridge in North Kingstown.

While the Jamestown-Verrazano Bridge was completed and opened to traffic in 1992, the old bridge has not yet been removed. In the years that followed the completion of the new bridge, a Supplemental Environmental Impact Statement (SEIS) was prepared for the Removal of the Old Jamestown Bridge in accordance with the National Environmental Policy Act (supplemental to the original EIS prepared for the replacement of the Old Jamestown Bridge). Bridge inspections and evaluations conducted for the design of the demolition contract revealed that the portion of the bridge originally designated to remain had deteriorated significantly, to the point where it was no longer feasible or prudent to rehabilitate the structure for development as a recreational fishing pier. Approved for distribution in March of 2004, the SEIS Record of Decision determined that the entire bridge structure should be removed.

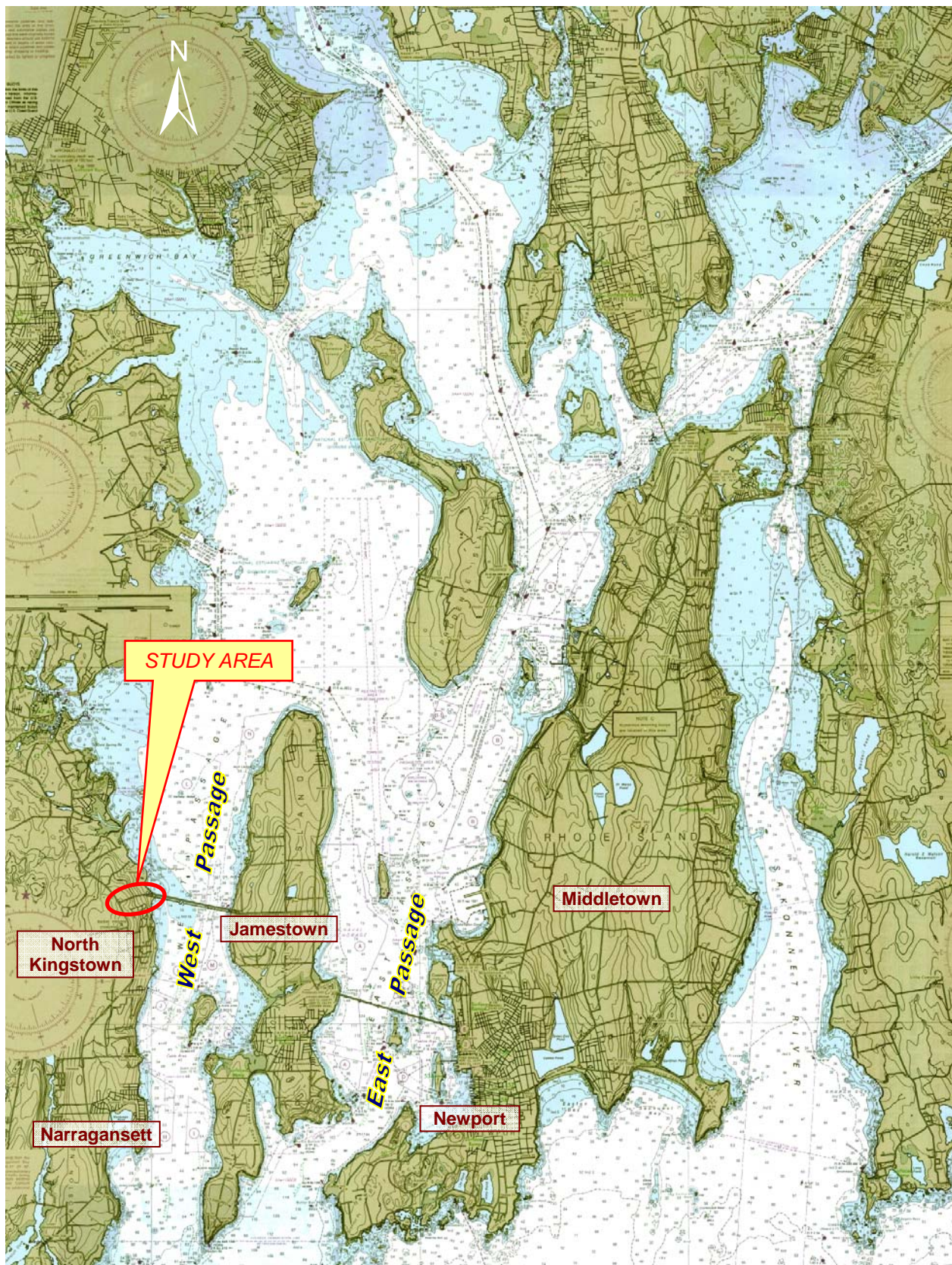


Figure 1. Location of the Old Jamestown Bridge Site within Narragansett Bay (Source: NOAA/RIGIS)

The Easterly three-fourths of the Old Jamestown Bridge will be demolished and removed by the RIDOT under Rhode Island Contract No. 2005-CB-035, which is anticipated to be complete by 2007. The remaining westerly portion of the bridge will be removed under a separate future contract, with the location of this structure and state-owned land being retained for potential recreational fishing development.

The purpose of this document is to evaluate the State-owned land at the North Kingstown approach of the Old Jamestown Bridge and its suitability for potential future development as a public park facility for pier fishing access to Narragansett Bay. Factors considered in this assessment consist of the site location and surrounding environment (including compatibility with surrounding land and water uses, as well as the quality of fishing at this location in the West Passage), the potential social implications and affected parties (including surrounding residents and potential users), and infrastructure and preliminary design considerations relative to the recreational fishing experience (including scale of development, parking and access, amenities, etc.). Based on thorough assessments of each of the above, summary findings are presented on the viability of the Old Jamestown Bridge Site for recreational fishing development.

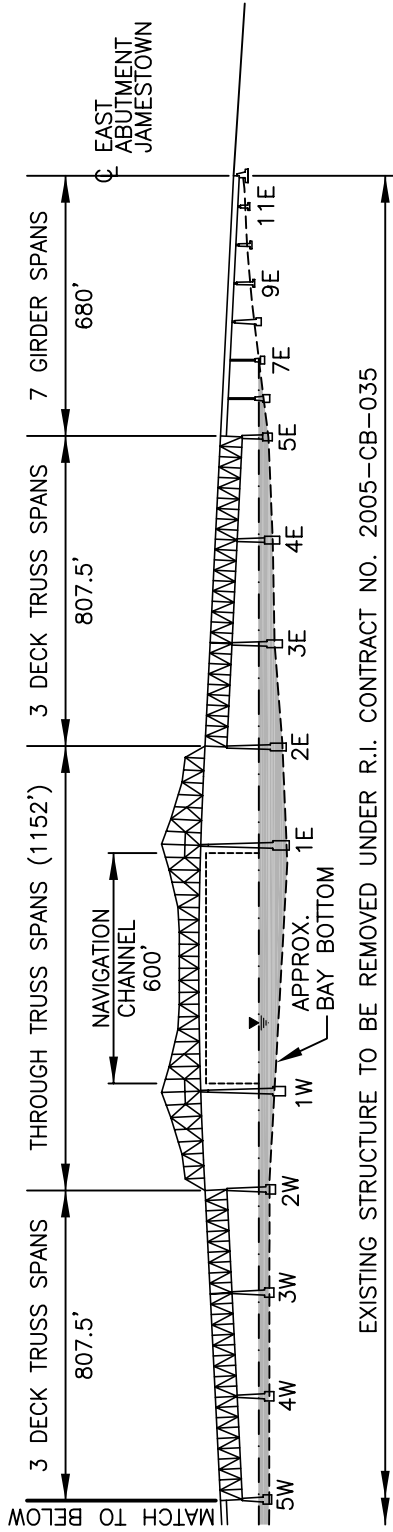
1.1 The Old Jamestown Bridge - Jamestown Bridge No. 400

The Old Jamestown Bridge spans the West Passage of Narragansett Bay between the towns of North Kingstown and Jamestown (Conanicut Island). The existing structure, which was originally opened to traffic in 1940, was a major water crossing providing both vertical and horizontal channel openings adequate for naval aircraft carriers that were home-ported at the Quonset Naval Air Station. The bridge operated as a toll facility for 30 years until the opening of the Newport Bridge spanning the East Passage of Narragansett Bay in 1969, whereupon responsibility for the bridge transferred from the Bridge and Turnpike Authority to the Department of Transportation. The overall length of the bridge crossing is approximately 7,000 feet.

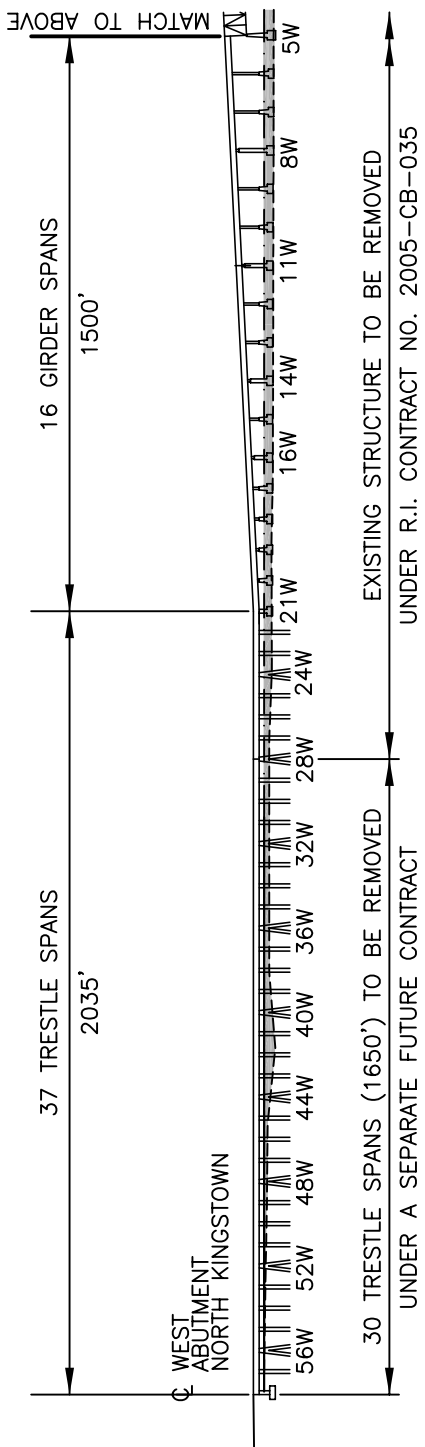
The Old Jamestown Bridge consists of four different types of superstructure. Beginning at the West Abutment in North Kingstown and proceeding easterly to the East Abutment, the bridge superstructure elements consist of:

- Thirty-seven (37) Trestle Spans, for a length of 2035 feet (West Abutment - Pier 21W);
- Sixteen (16) Girder Spans, for a length 1500 feet (Pier 21W - Pier 5W);
- Three (3) Deck Truss Spans, for a length of 807.5 feet (Pier 5W - Pier 2W);
- The Through Truss Spans (2 Anchor, 2 Cantilever, and 1 Suspended Span), a conventional cantilever truss structure, the total length of which is 1,152 feet (Pier 2W - Pier 2E);
- Three (3) Deck Truss Spans, for a length of 807.5 feet (Pier 2E - Pier 5E);
- Seven (7) Girder Spans, for a length of 680 feet (Pier 5E - East Abutment).

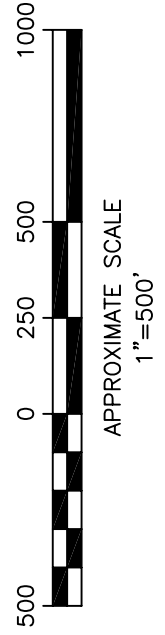
The composition of the Old Jamestown Bridge is depicted in Figure 2.



PARTIAL ELEVATION – EXISTING BRIDGE LOOKING NORTH



PARTIAL ELEVATION – EXISTING BRIDGE LOOKING NORTH



As a result of a statewide bridge inventory program conducted in 1970 to identify bridges in need of replacement, the Jamestown Bridge was identified as a bridge requiring replacement due to its functional obsolescence. The intended function of the bridge to carry volumes of traffic smoothly and safely over the West Passage of the Narragansett Bay had become obsolete due to increases in volumes and speeds, changes in vehicle characteristics, modern design and safety guidelines, as well as increased maintenance costs. Significant increases in traffic volumes had occurred as a direct result of the opening of the Newport Bridge, which allowed for direct motor vehicle access to Newport from the mainland via the Old Jamestown Bridge.

In accordance with the National Environmental Policy Act, an Environmental Impact Statement (EIS) was prepared to evaluate alternatives for the replacement of the Old Jamestown Bridge. Prepared by the RIDOT and the Federal Highway Administration (FHWA), the Final EIS for the Jamestown Bridge Replacement Project was approved for distribution in May 1981. The proposed action of the Final EIS was to replace the Old Jamestown Bridge with a new four-lane bridge constructed directly north of the existing structure. The length of the bridge alternative was 11,000 linear feet. Construction of the new Jamestown-Verrazano Bridge was completed in 1992, whereupon the Old Jamestown Bridge was closed to traffic. While the removal of the Old Jamestown Bridge remains a component of the Jamestown Bridge Replacement Project, this structure has not yet been removed. Figure 3 shows the location of both bridges within the West Passage.

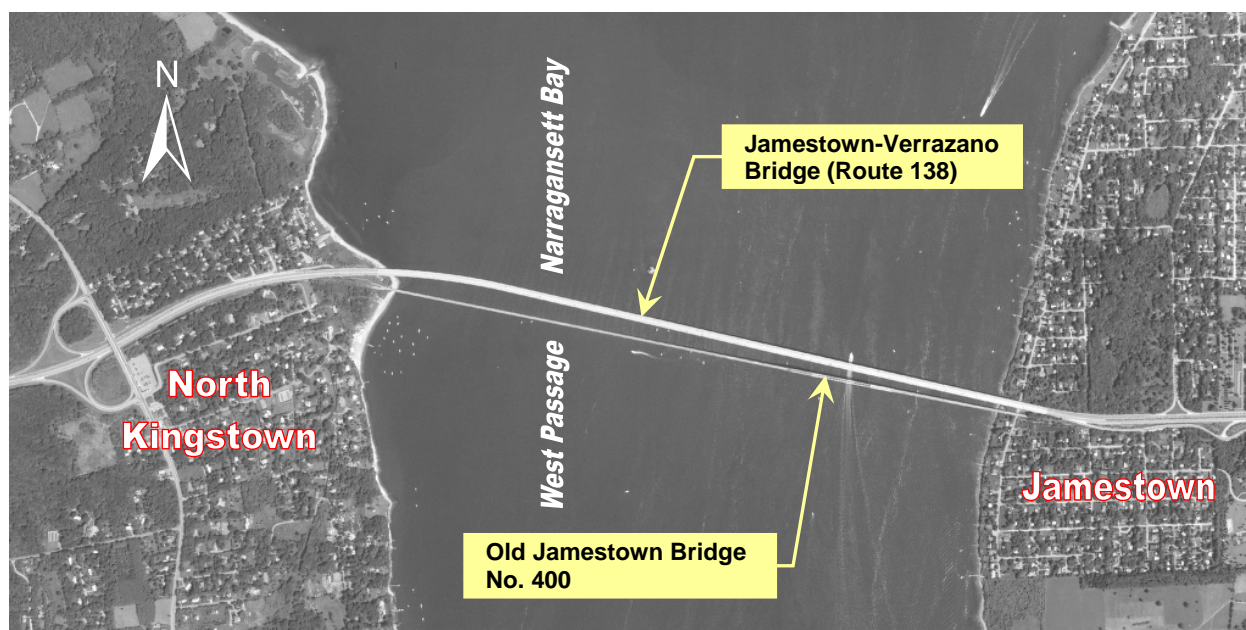


Figure 3. Aerial photograph of the Old Jamestown and Jamestown-Verrazano Bridges (Source: RIGIS)

1.2 A Public Fishing Pier

During the design and construction of the Jamestown-Verrazano Bridge, State officials envisioned that, while the main structure would be demolished and removed, a portion of the trestle structure (see Figure 2) and the state-owned right of way in North Kingstown could be retained for future development as a public fishing pier and park. The West Passage has historically been known to provide quality recreational fishing, as many species of interest use

the passage as a migration route between the inner reaches of Narragansett Bay and the open ocean waters of Rhode Island Sound. While the old bridge was open, recreational anglers would often frequent the structure to fish from the sidewalks along the trestle portion. The site would also have the highway infrastructure in place (State Route 138) to afford a greater portion of the general public access to the recreational facility.



Figure 4. View of the main channel spans of the Old Jamestown Bridge (foreground) and Jamestown-Verrazano Bridge from North Kingstown (GRA Photo)

The State's intent to develop the Old Jamestown Bridge Site as a recreational fishing site was made official in 1987 with the passing of Rhode Island General Law § 24-12-51.1, which reads as follows:

§ 24-12-51.1 Jamestown Verrazzano Bridge – Fishing area and park. – (a) *The director of the department of transportation is hereby authorized and directed to retain a portion of the North Kingstown side of the existing Jamestown Bridge for use as a public fishing pier. The portion so retained shall be sufficient in area to facilitate the purposes of this section and shall be open to the general public at no charge, and shall be made accessible to persons with disabilities.*

(b) *The director of the department of environmental management is hereby authorized and directed to develop and maintain a park on state owned land adjacent to the existing Jamestown Bridge on the North Kingstown side of the bridge, suitable for use in conjunction with the fishing pier provided for in this section. The park shall be open to the general public at no charge.*

In constructing the Jamestown-Verrazano Bridge, the RIDOT also upgraded Route 138 between Route 1 and the Newport Bridge to a 4-lane limited access highway. This included the partial construction of two freeway ramps to provide access to the planned recreational fishing site: an off-ramp providing access from State Route 138 East and an on-ramp providing egress to State Route 138 West (including an underpass beneath the new four-lane highway). Preliminary demolition design plans were developed by the RIDOT, which called for the retention and rehabilitation of the trestle portion of the bridge to Pier 28W (see Figure 2) as well as the construction of a parking lot and other infrastructure improvements within the bridge right-of-way in North Kingstown.

As previously noted, the portion of Old Jamestown Bridge designated for demolition was not removed upon completion of the Jamestown-Verrazano Bridge, and has not yet been removed. Following the completion of the new bridge in 1992, several issues (primarily related to State and federal funding) delayed the design and permitting of the bridge demolition and fishing park construction. During this time the old bridge was frequented by the public as an ad-hoc fishing pier. While providing quality fishing, the site was neither maintained nor monitored, and the public's enjoyment of the old bridge was marred by vandalism, littering, and concerns over safety. In the late 1990s the Old Jamestown Bridge was gated off and permanently closed.



Figure 5A (left). Trestle section of the Old Jamestown Bridge from the North Kingstown shoreline.

Figure 5B (right). The old bridge has been closed to the public for several years. The Jamestown-Verrazano Bridge can be seen in the background. (GRA Photos)

During the period of dormancy following the opening of the Jamestown-Verrazano Bridge, the RIDOT considered alternatives for the disposition of the Old Jamestown Bridge. While the removal of the Old Jamestown Bridge remained a condition of the permit granted by the United States Coast Guard to the RIDOT for the construction of the new Jamestown-Verrazano Bridge, the potential use of the Old Jamestown Bridge in its entirety as a bikeway, pedestrian path, and/or fishing pier was explored. Both the Towns of North Kingstown and Jamestown rejected this proposal, citing concerns over structural stability, safety issues, and maintenance costs. In November of 1999, the Town of Jamestown requested that the RIDOT proceed with its original plan to remove the Old Jamestown Bridge. The Town of North Kingstown made the same request in December of 1999. The United States Coast Guard further insisted that the RIDOT remove the Old Jamestown Bridge due to the navigational hazards presented by the bridge in its current location and condition. Since the option of utilizing the full bridge structure was no longer feasible, it was determined that the bridge must be removed. The RIDOT remained legally obligated to retain a portion of the westerly trestle structure in accordance with Rhode Island General Law § 24-12-51.1.

Since the approval of the Final EIS for the Jamestown Bridge Replacement Project, new ideas regarding the ultimate disposal of the Old Jamestown Bridge were also explored. Realizing the high costs associated with conventional landfill disposal of bridge materials, the RIDOT considered the innovative material reuse option of deploying demolition debris for the creation of marine artificial reefs in the State's near and offshore waters. Many Southern Atlantic coastal states have successfully utilized concrete and steel bridge materials to create artificial reefs, offering marine habitat creation, fisheries enhancement, and an environmentally-friendly alternative to conventional disposal options. Since this manner of material disposal was beyond

the scope of the original EIS, the FHWA determined that a Supplemental Environmental Impact Statement (SEIS) was required.

The Draft SEIS for the Jamestown Bridge Replacement Project was issued in February of 2003, in which three bridge disposal alternatives were considered: a conventional landfill disposal alternative, an artificial reef creation alternative, and a hybrid alternative combining elements of the first two alternatives. The Draft SEIS focused solely on the proposed demolition of the bridge (from Pier 28W to the East Abutment in Jamestown) and the disposal of the resulting bridge material. Given that Rhode Island General Law § 24-12-51.1 mandated retention of a portion of the trestle structure, issues relating to the rehabilitation and development of the trestle portion of the bridge were not addressed.

A public hearing was held at the North Kingstown High School on March 27, 2003 to solicit comments regarding the Draft SEIS and the bridge demolition project. This was followed by a public comment period which continued until April 25, 2003, during which agencies, organizations and individuals could submit written comments regarding the Draft SEIS.

While the RIDOT stated that the proposed future development of a recreational fishing pier at the Jamestown Bridge Site was outside the scope of the SEIS and would not be evaluated in the document, several individuals and groups nonetheless submitted comments on this very issue (both in writing and at the public hearing). Several comments were offered by residents of North Kingstown, primarily those of the neighborhoods directly north and south of the Old Jamestown Bridge Site, objecting to the proposed fishing pier and park. Detractors of the public fishing site cited concerns over costs, maintenance, and security, and questioned the validity of developing a public fishing park facility in a primarily residential area. Citing the problems associated with past use of the bridge as an unsanctioned fishing pier (which ultimately lead to its permanent closure), many suggested that the entire structure of the Old Jamestown Bridge should be removed. Conversely, several individuals and recreational fishing organizations commented in favor of future fishing pier development at the bridge site. These proponents argued that the bridge location within the West Passage would offer excellent access to high quality fishing, noting that the State has no such facilities in Narragansett Bay designed or built for the purpose of enhancing the public's access to shoreline recreational fishing opportunities. Though ultimately not part of the SEIS study, the volume of comments submitted regarding the proposed fishing pier site underscored the high public interest in this issue and the divergent opinions on it.

The Final SEIS for the removal of the Old Jamestown Bridge was approved for distribution on January 4, 2004, in which the hybrid alternative was identified as the preferred alternative. This alternative called for the recycling of structural bridge steel and using bridge concrete to create artificial reefs in the waters of Rhode Island Sound. By this time the RIDOT had begun final design and permitting for the bridge demolition project.

As part of the final design process, a comprehensive inspection was conducted on the trestle portion of the bridge (from the West Abutment to Pier 28W) proposed for retention and future fishing pier development. Conducted in 2003 by Gordon R. Archibald, Inc., this inspection revealed that the trestle portion of the bridge is in an extremely deteriorated condition, including critical deficiencies in the concrete deck and trestle bents (see Figures 6A through 6F). Through an evaluation of the inspection data it was concluded that (1) the existing trestle section is structurally unfit for the development of a recreational facility, and (2) rehabilitation of the structure is neither practical nor economically feasible. An excerpt of the November 2003

Inspection & Testing Report containing the evaluation of the trestle spans is provided in Appendix A.



Figures 6A - 6F. By 2003 portions of the trestle spans had deteriorated to where it was no longer feasible to rehabilitate the structure for conversion to a public fishing pier. (GRA Photos)

In light of this development, the RIDOT and FHWA determined that the trestle spans should be removed due to the dilapidated condition of structural elements. Accordingly, the Record of Decision for the SEIS issued in March 2004 broadened the extent of the proposed bridge demolition and removal to include the entire bridge structure. This modification did not require a reevaluation of alternatives since inclusion of the trestle did not have significant bearing on the manners of debris disposal under consideration. In the context of Rhode Island General Law § 24-12-51.1, the Record of Decision stated that location of the trestle (both the State right-of-way in North Kingstown and the waters of the West Passage) will be retained for potential future recreational fishing use. While the existing trestle structure is unfit for rehabilitation as a public fishing pier, this provision allows for the State to consider constructing a new pier facility at the site.

Since permitting and design of the bridge demolition project to the originally-intended extents were nearly complete, the RIDOT did not modify the scope of this project. Advertised in April of 2005, the easterly three-fourths of the Old Jamestown Bridge (to Pier 28W) will be demolished and removed under Rhode Island Contract No. 2005-CB-035. The trestle spans from Pier 28W up to and including the West Abutment will be demolished and removed by the RIDOT under a separate future contract.

1.3 Current Status of the Old Jamestown Bridge Site

R.I. Contract No. 2005-CB-035 commenced in September of 2005. Major demolition operations will take place in 2006, with substantial completion anticipated by early 2007. The State right-of-way at the North Kingstown approach and the trestle spans will be utilized during this project for equipment staging and construction access.

In accordance with the SEIS Record of Decision, the RIDOT will remove the remaining trestle in a second demolition phase under a separate contract. A timetable has not yet been established for the removal of this trestle structure.

Additionally, legislation to repeal Rhode Island General Law § 24-12-51.1 was introduced on March 29, 2005 for consideration by the Rhode Island General Assembly. Intended to relieve the RIDOT and RIDEM of their respective obligations to retain a portion of the bridge and develop a public fishing park at the North Kingstown approach, House Bill No. 6287 was referred to the House Finance Committee but was not acted upon in the 2005 Legislative Session. A copy of this bill is provided in Appendix B of this document. It is not known whether this legislation will be re-introduced in the 2006 Legislative Session.

The future of the Old Jamestown Bridge Site remains quite uncertain. In light of these recent developments and the high public interest in the future of the Old Jamestown Bridge Site in North Kingstown, the RIDEM is undertaking a comprehensive evaluation of public shoreline access to recreational fishing in Narragansett Bay.

The public shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore to which they have been heretofore entitled under the charter and usages of this State. (Article I, Section 17 of the Rhode Island Constitution)

The RIDEM is charged with maintaining, developing, and promoting safe and accessible outdoor recreational opportunities in the State. The intent of this evaluation is to inventory existing public shoreline fishing access throughout Narragansett Bay, to assess the State's need and demand for enhanced recreational fishing opportunities, and to provide

recommendations and guidance for future recreational fishing development initiatives by the State.

The twofold objectives of the study are as follows:

1. to fully investigate and evaluate the Old Jamestown Bridge site for potential future development as a recreational fishing area;
2. to identify and analyze several other shoreline locations within Narragansett Bay to determine if additional or alternate public fishing sites and facilities can be developed.

This report comprises the analyses and findings of the first objective this study. The second component of study, an evaluation of several alternate access sites within Rhode Island, was undertaken during the summer and fall fishing seasons of 2005. These two investigations comprise the RIDEM study of public access to shoreline recreational fishing in Narragansett Bay.

2.0 LOCATION AND SURROUNDING ENVIRONMENT

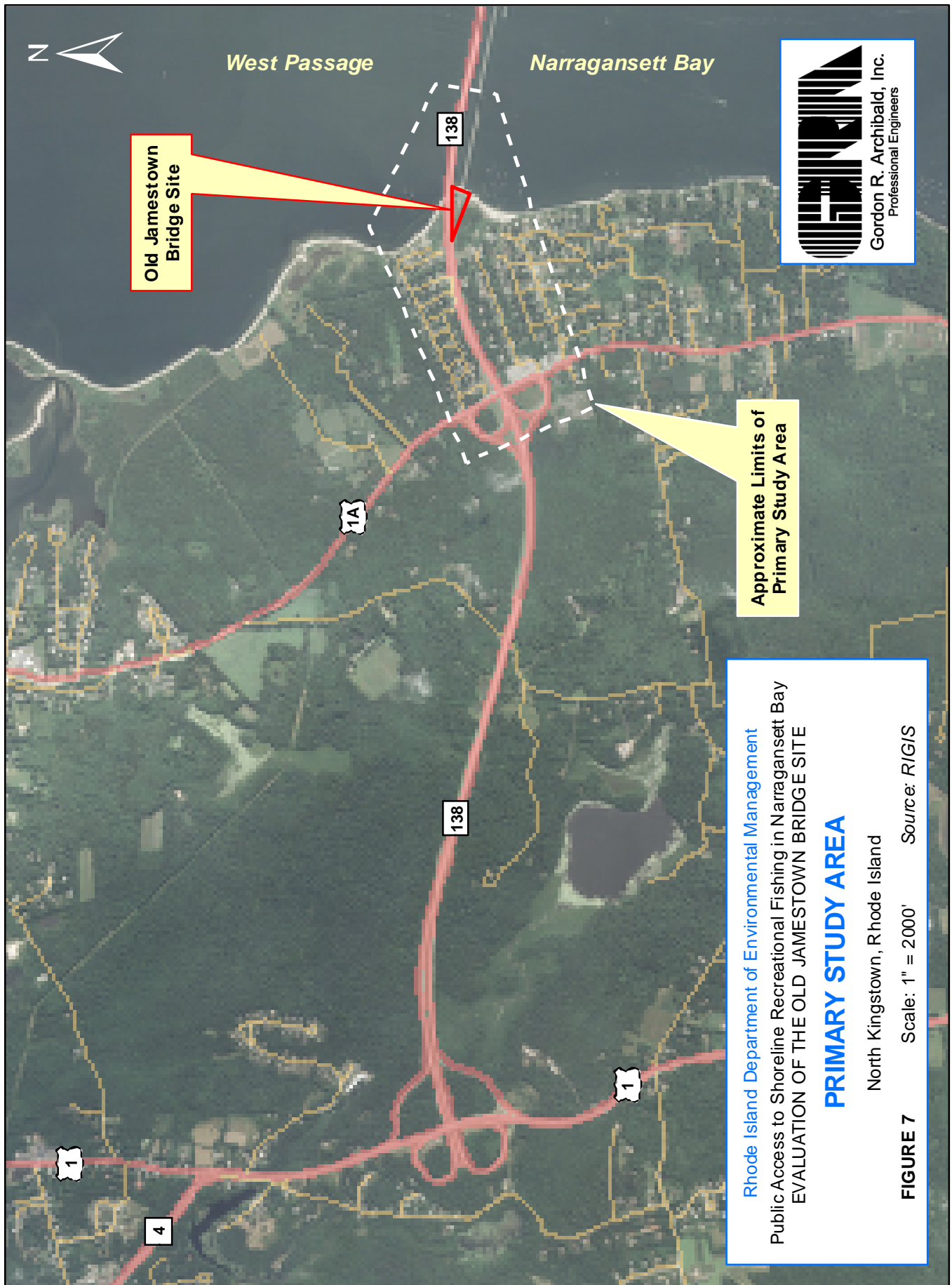
The primary study area for evaluation of the Old Jamestown Bridge Site consists of the land of North Kingstown and the West Passage of Narragansett Bay in the immediate vicinity of the West Abutment of the Old Jamestown Bridge. Figure 7 depicts the approximate limits of the primary study area within North Kingstown and the West Passage.

2.1 Water and Land Use

Within the West Passage, waters along the North Kingstown coastline are classified by the Rhode Island Coastal Resources Management Council (CRMC) as Type 2 waters - low-intensity use. This type is defined in the CRMC Coastal Resources Management Program as "waters in areas with high scenic value that support low-intensity recreational and residential uses. These waters include seasonal mooring areas where good water quality and fish and wildlife habitat are maintained." Approximately 500 feet seaward from the coastline these waters transition to Type 4 - multipurpose waters, characterized as "large expanses of open water in Narragansett Bay and the Sounds which support a variety of commercial and recreational activities while maintaining good value as a fish and wildlife habitat."

Official Coast Survey nautical charts published by the National Oceanic and Atmospheric Administration (NOAA) designate the primary study area waters along the North Kingstown coastline as a general anchorage area ("L", see Figure 8). The main navigation channel through the West Passage is located along the easterly side of the channel where the greater bay depths exist, corresponding to the main span openings of the Jamestown-Verrazano and Old Jamestown Bridges. Bay bottom depths along the westerly half of the Passage are relatively constant at 15 to 20 feet below mean low water with a gradual transition to depths in excess of 60 feet at the main channel (see Figure 8). The lateral extent of this flat westerly portion of the West Passage extends beyond the length of the trestle spans of both bridges.

Two private beach clubs are within the immediate vicinity of the primary study area. The Plum Point Shores club is located along the North Kingstown shoreline directly north of the Jamestown-Verrazano Bridge, and The Plumb Beach Club is located along the North Kingstown shoreline directly south of the Old Jamestown Bridge. Both clubs provide for low-intensity recreational activities such as swimming and sailing.



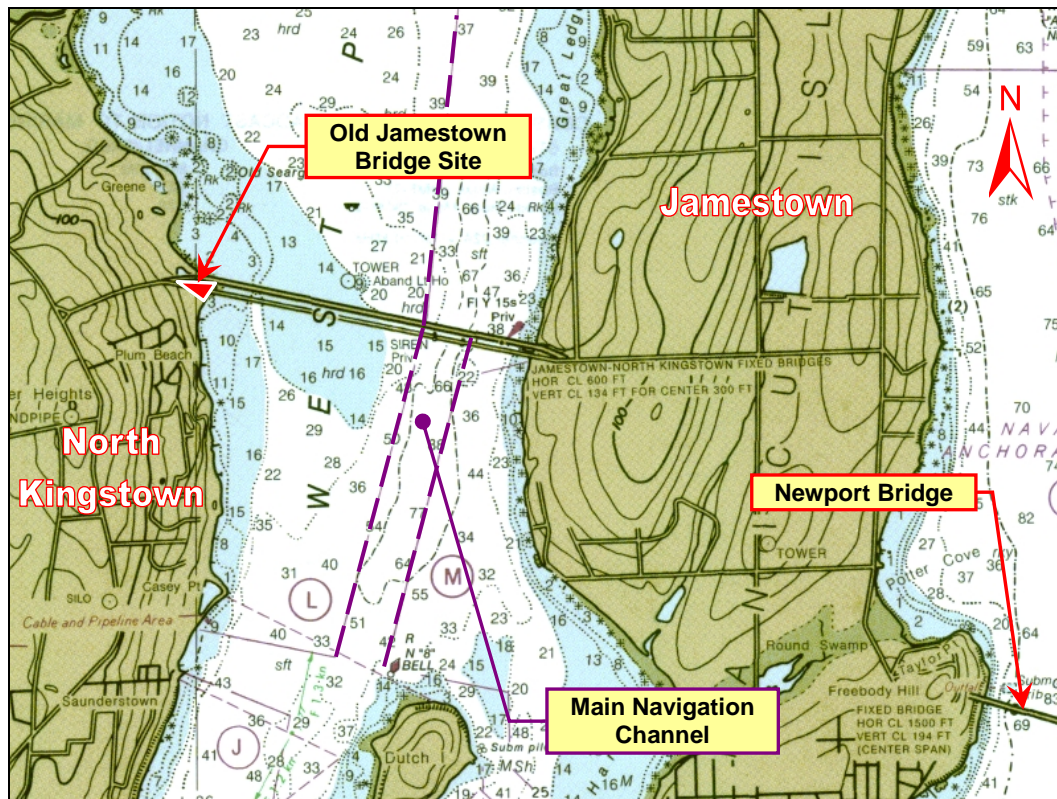


Figure 8. Cropped image of NOAA Nautical Chart No. 13221 showing the West Passage in the vicinity of the primary study area. (source: NOAA/RIGIS)

The most prominent land feature within the primary study area is the freeway corridor for State Route 138. This segment of State Route 138 is a four-lane, divided, limited access freeway beginning at the interchange with U.S. Route 1 and continuing across the West Passage via the Jamestown-Verrazano Bridge. In addition to being the direct transportation link between mainland Rhode Island and Jamestown, Route 138 also serves as the primary route for motorists traveling to Newport from Providence, Western Rhode Island, Connecticut, and other points west (via the Jamestown-Verrazano and Newport Bridges). The City of Newport is renowned as a popular tourist destination for its beaches, sailing, shopping, ornate mansions, and rich history.

The location of the Old Jamestown Bridge Site within the Rhode Island / Southeast New England transportation network is shown in Figure 9. Much of this region may be considered a secondary study area for the purposes of this assessment, given that the majority of potential users of a fishing pier at the Old Jamestown Bridge Site would be likely to reside within a reasonable travel distance from the site.

Land use within the primary study area is almost exclusively residential, with small variations in residential zoning type to provide for different densities and accommodate natural features of the area, particularly wetlands. Two residential neighborhoods immediately flank the State Route 138 corridor approaching the Jamestown-Verrazano Bridge. Figure 10 depicts zoning for the Town of North Kingstown and other prominent features within the primary study area.

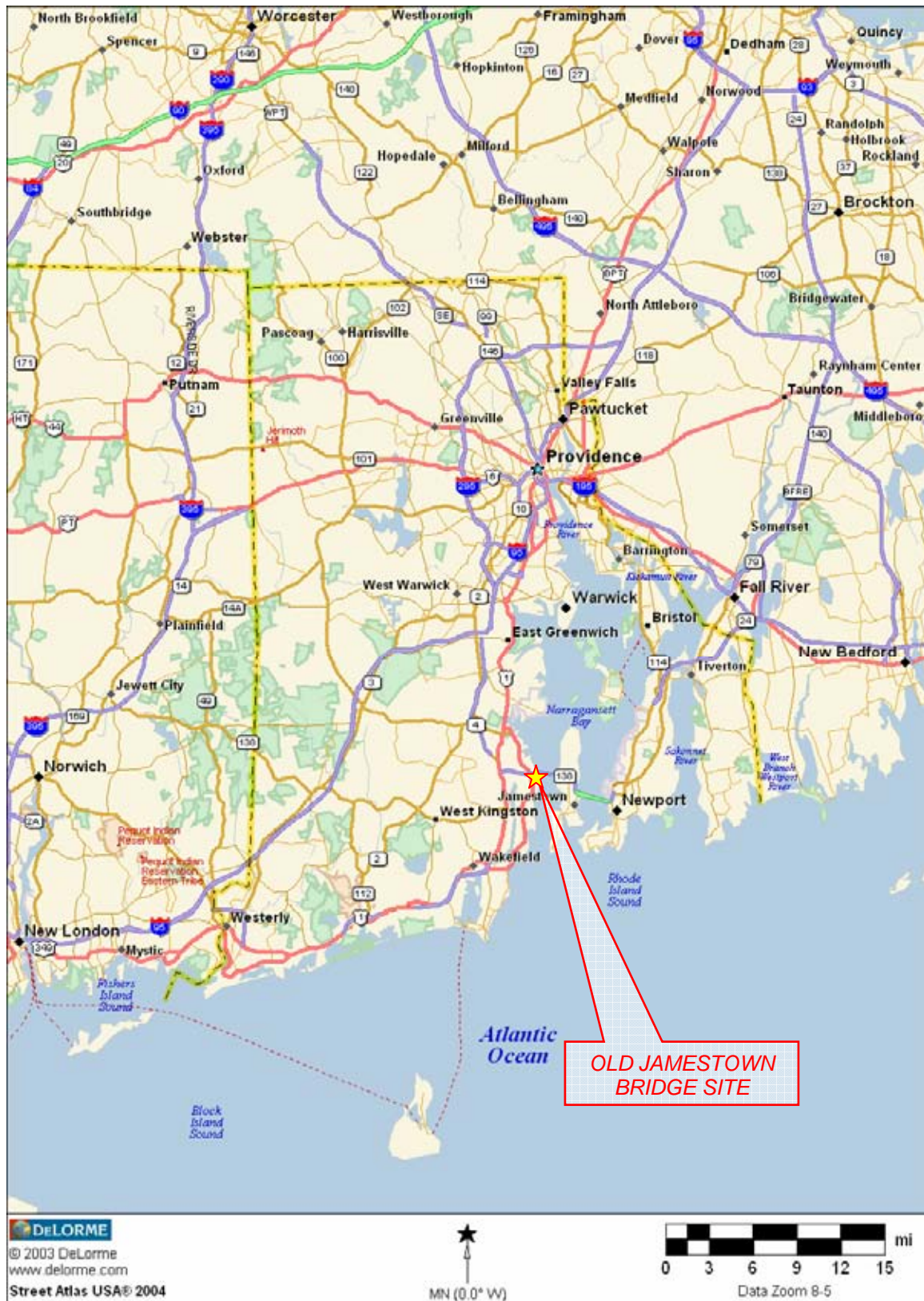
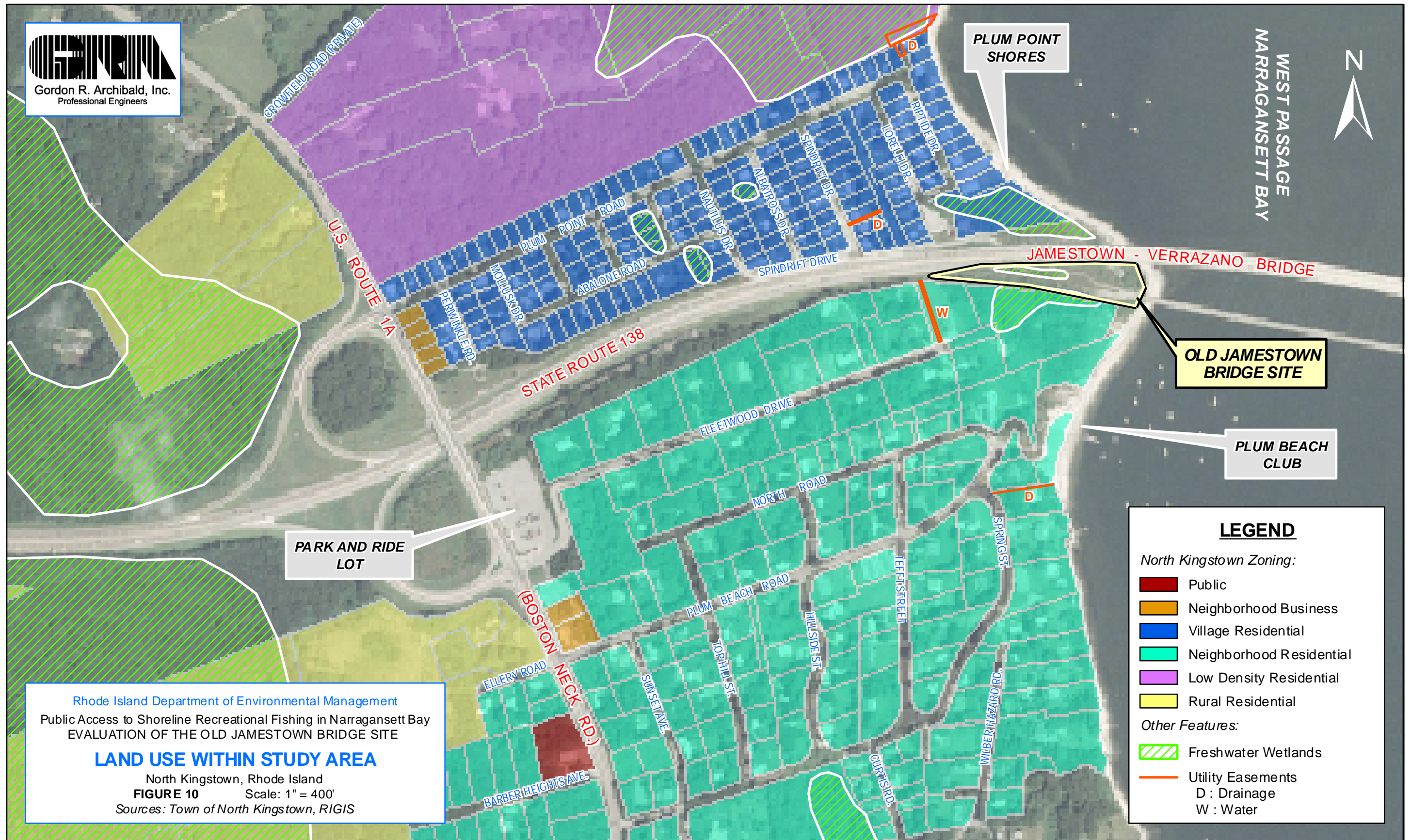
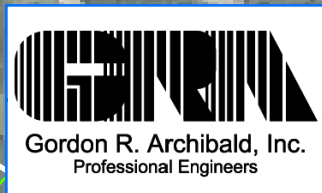


Figure 9. Location of Jamestown Bridge Site within Rhode Island / Southeastern New England Transportation Network (Source: DeLorme Street Atlas USA 2004)



Rhode Island Department of Environmental Management
Public Access to Shoreline Recreational Fishing in Narragansett Bay
EVALUATION OF THE OLD JAMESTOWN BRIDGE SITE

LAND USE WITHIN STUDY AREA

North Kingstown, Rhode Island
FIGURE 10 Scale: 1" = 400'
Sources: Town of North Kingstown, RIGIS

LEGEND

North Kingstown Zoning:

- Public
- Neighborhood Business
- Village Residential
- Neighborhood Residential
- Low Density Residential
- Rural Residential

Other Features:

- Freshwater Wetlands
- Utility Easements
- D : Drainage
- W : Water

North of Route 138 and within North Kingstown Assessor's Plat 42, the neighborhood accessed from Route 1A (Boston Neck Road) by Plum Point Road is zoned as a *Village Residential* (VR20) district. This district is described in the Town of North Kingstown zoning regulations as "...established to protect and promote the convenience and character of compact village settlements, designed to complement the natural features of the land. The village residential district is also intended for areas which have town water service, are generally located close to major circulation facilities and commercial and/or industrial uses and have direct access to town services and facilities." The Plum Point Shores club is located within this zoning district.

Directly South of Route 138 and within North Kingstown Assessor's Plat 41, a larger, less dense residential neighborhood is bounded by Route 138, Route 1A, and the waters of the West Passage. Accessed from Route 1A by Fleetwood Drive and Plum Beach Road, this neighborhood is zoned as a *Neighborhood Residential* (NR40) district, described in the Town of North Kingstown zoning regulations as "...established to promote moderate density residential growth in areas with natural limitations for development or which have town water service but no public sanitary sewers." The Plum Beach Club is located within this zoning district.

Also within the primary study area is the freeway interchange between State Route 138 and U.S. Route 1A (Boston Neck Road). Route 1A is a 2-lane undivided road, classified as both a scenic route and a bicycle route, with wide paved shoulders (and no parking) to accommodate the latter use. Along Route 1A at this interchange is a state-owned public "park and ride" lot serviced by the Rhode Island Public Transportation Authority (RIPTA). This park and ride lot was constructed through the Route 138 Upgrading Project (State ROW Plat No. 2119) as an intermodal facility intended for commuter and bicycle parking (both for the Route 1A Bicycle Route and a possible future path to the fishing pier site and Jamestown-Verrazano Bridge). RIPTA bus routes stopping at this location provide public transit to and from Downtown Providence, Narragansett, Newport, the University of Rhode Island (Kingston), and T.F. Green Airport in Warwick. This lot has a maximum capacity of approximately 170 passenger vehicles.

2.2 Fisheries within the West Passage

Of principal interest in evaluating the suitability of fishing pier development at the Old Jamestown Bridge site is the quality of recreational fishing offered by the site's location within Narragansett Bay. Species of fish expected to be caught at the Old Jamestown Bridge Site were evaluated principally through analysis of data from the RIDEM monthly fish trawl survey. Data were averaged for two fixed sampling stations in the vicinity of the Jamestown Bridges (stations 132 and 197) over the years 1990-2004. All fish abundance data were averaged, interpreted, and presented as mean numbers of fish per tow. Fish abundance data were interpreted monthly and seasonally for a variety of individual species and groups of species (see Table 1 for list of species, scientific names, and assigned groups) to determine which species might be expected to be caught, and during what season, in the vicinity of the Old Jamestown Bridge Site.

Table 1
Fish Species List

Common and scientific names and group assignments of Narragansett Bay species included in graphs and text discussions. "Important" group includes recreational species considered important in Narragansett Bay according to RIDEM (Tim Lynch, personal communication). Pleuronectiform includes flatfish species belonging to the Order *Pleuronectiformes*. Clupeiform includes herring-like species belonging to the Orders *Clupeiformes* and *Atheriniformes*. Gadiform includes cod-like species belonging to the Order *Gadiformes*.

Common Name	Scientific Name	Group
Bluefish	<i>Pomatomus saltatrix</i>	Important
Striped Bass	<i>Morone saxatilis</i>	Important
Black Sea Bass	<i>Centropristis striata</i>	Important
Scup	<i>Stenotomus chrysops</i>	Important
Weakfish	<i>Cynoscion regalis</i>	Important
Tautog	<i>Tautoga onitis</i>	Important
Longfin Squid	<i>Loligo pealeii</i>	Important
Summer Flounder	<i>Paralichthys dentatus</i>	Important, Pleuronectiform
Winter Flounder	<i>Pseudopleuronectes americanus</i>	Important, Pleuronectiform
Fourspot Flounder	<i>Hippoglossina oblonga</i>	Pleuronectiform
Yellowtail Flounder	<i>Limanda ferruginea</i>	Pleuronectiform
Windowpane	<i>Scophthalmus aquosus</i>	Pleuronectiform
Gulfstream Flounder	<i>Citharichthys arctifrons</i>	Pleuronectiform
Atlantic Silverside	<i>Menidia menidia</i>	Clupeiform
Round Herring	<i>Etrumeus teres</i>	Clupeiform
Atlantic Herring	<i>Clupea harengus harengus</i>	Clupeiform
Alewife	<i>Alosa pseudoharengus</i>	Clupeiform
Blueback Herring	<i>Alosa aestivalis</i>	Clupeiform
American Shad	<i>Alosa sapidissima</i>	Clupeiform
Atlantic Menhaden	<i>Brevoortia tyrannus</i>	Clupeiform
Hickory Shad	<i>Alosa mediocris</i>	Clupeiform
Bay Anchovy	<i>Anchoa mitchilli</i>	Clupeiform
Striped Anchovy	<i>Anchoa hepsetus</i>	Clupeiform
Silver Hake	<i>Merluccius bilinearis</i>	Gadiform
Atlantic Cod	<i>Gadus morhua</i>	Gadiform
Haddock	<i>Melanogrammus aeglefinus</i>	Gadiform
Pollock	<i>Pollachius virens</i>	Gadiform
White Hake	<i>Urophycis tenuis</i>	Gadiform
Red Hake	<i>Urophycis chuss</i>	Gadiform
Spotted Hake	<i>Urophycis regia</i>	Gadiform
Fourbeard Rockling	<i>Enchelyopus cimbrius</i>	Gadiform
Cusk	<i>Brosme brosme</i>	Gadiform
Threebeard Rockling	<i>Gaidropsarus vulgaris</i>	Gadiform
Atlantic Tomcod	<i>Microgadus tomcod</i>	Gadiform

Abundances (mean number of fish per tow) of important, high value recreational fish, as identified by RIDEM (Tim Lynch, personal communication), were evaluated on a monthly basis. Graphs depicting mean monthly abundances of important recreational fish species are provided in Appendix 4, Figure 1a-i. Monthly analyses indicated a strong seasonal signal in the abundance of all important recreational species, with the exception of striped bass which displayed low abundance (< 1 per tow) throughout the year. Winter flounder was the only important species with noticeable presence in all months (2.3 - 13.3 per tow), but it also displayed a distinct seasonality with spring abundance peaks in April (13.3 per tow) and May (12.9 per tow). All other important species displayed distinct seasonal peaks in summer months: tautog peaked in June (3.2 per tow); summer flounder in July (2.9 per tow); squid (1033 per tow) and scup (573 per tow) in August; and bluefish (20.9 per tow), weakfish (22.0 per tow), and black sea bass (1.6 per tow) in September. Squid and scup are also notable due to the much larger peak abundances (500-1000 per tow) compared to the other important species (all others < 25 per tow).

Monthly abundance data were pooled for specified groups of species (see Table 1) and evaluated on a seasonal basis as mean number of fish per tow (Appendix 4, Figure 2a-d). Monthly data were assigned to seasons based on qualitative observations of major shifts in various species abundances, yielding the following bins: Winter (December, January, February, March), Spring (April, May), Summer (June, July, August, September), Fall (October, November), Year (all months). Species groups evaluated for seasonal abundance patterns included (a) the important, high value, recreational species (important), (b) herring-like species belonging to the Order *Clupeiformes* (clupeiform), (c) flatfish species belonging to the Order *Pleuronectiformes* (pleuronectiform), and (d) the cod-like species belonging to the Order *Gadiformes* (gadiform).

Seasonal trends for the important recreational species as a group (Appendix 4, Figure 2a) indicated a strong abundance peak during summer months (802 per tow), minimum in winter (6 per tow), and an annual average of 347 fish per tow. Both the seasonal analysis of important species as a group and the monthly analyses of important species individually, indicated summer months represent the greatest occurrence of most of the important species (winter flounder being the exception). As a group, the abundance of important species was one to two orders of magnitude higher in the summer than any other season. However, the large summer abundance peak in this group was principally attributable to very large peaks in scup and squid, which were approximately 20 to 40 times more abundant than any other individual species in the group.

Both the gadiform and pleuronectiform groups include several important commercial and recreational fish species (e.g. pollock, cod, winter and summer flounder, etc.) and therefore may also represent high quality fishing opportunities if present in abundant numbers. In contrast to the important species group, both the gadiform and pleuronectiform groups displayed peak abundances in spring. While both gadiform and pleuronectiform peak abundances (7 and 16 per tow, respectively) and annual average abundances (3 and 9 per tow, respectively) were substantially lower than the important species group, these abundance values were comparable to the important species if the highly abundant scup and squid are excluded. Hake (spotted, silver, red), and to some extent Pollock were the predominant species caught in the gadiform group. Winter flounder was the principal species caught in the pleuronectiform group.

Clupeiforms are not typically important recreational fish but were included in the analyses as they are often important prey species for many other fish species, particularly for several important pelagic predatory fish such as bluefish, striped bass, and weakfish. The clupeiform

seasonal abundance pattern was quite similar to the pattern displayed by the important species group, both in terms of seasonality and magnitude: clupeiform abundance peaked in the summer (733 per tow), displayed a large annual average (368 per tow), but decreased significantly in all other seasons (88-146 per tow).

The abundance patterns discussed above suggest that spring and summer months offer the greatest opportunity for catching high value fish in the vicinity of the Old Jamestown Bridge Site. Spring months (March and April) appear to favor demersal species such as the flatfish (pleuronectiforms) and to a lesser extent the cod-like fish (gadiforms). Of particular note in the spring are winter flounder, the predominant species present in the spring and one of significant recreational importance. In the summer months (May-September) important recreational species, with the exception of winter flounder and striped bass, showed substantially greater abundances. As a group, the summer peak in important species was quite substantial, but this was principally attributable to exceptional peaks in scup and squid. For virtually all species evaluated, abundance numbers declined precipitously in the late fall and winter months.

Caution should be used when drawing conclusions about likely fish catch based strictly on abundance data. The abundance data discussed above suggest that scup and squid would be the predominant fish caught by recreational anglers in the vicinity of the former Jamestown Bridge. Actual fish caught in any location will of course be strongly influenced by fishing effort and methods employed. The abundance data presented above should be viewed as a measure of the diversity and seasonal abundance of various species, and therefore an indicator of potential availability of fish to recreational anglers. The data do not represent quantitative estimates for actual numbers of fish which might be expected to be caught. Given this limitation, these data will be most useful as a qualitative assessment of the potential fishing quality of a site and be particularly effective as a means of comparing various potential fish pier sites to one another.

While the RIDEM trawl survey data is an excellent source of quantitative data, there are also some significant potential limitations to the dataset. Most notably, several of the important recreational species may be under-sampled in the trawl surveys and thus result in low abundance estimates. For example, pelagic predatory fish such as bluefish, striped bass, and weakfish are likely underrepresented in the trawl data because these species are too large, and swim too quickly to be captured efficiently by the gear employed in the RIDEM trawl survey. Additionally, due to the tendency of these fish to congregate in dense feeding schools, the concentration of these species is typically highly mobile and patchy. Generalized estimates of regional abundances are therefore difficult to estimate for these species.

The abundance of clupeiforms, an important group of prey species, may serve as a proxy of sorts for potential pelagic predator abundance. Bluefish, striped bass and weakfish are notoriously voracious predators and will frequently be found following schools of prey species, such as clupeiforms. Abundant clupeiforms may then suggest the potential for attracting the high quality predatory fish many recreational anglers are interested in. Around the Old Jamestown Bridge Site, clupeiform abundance was highly seasonal with very large peak abundances in the summer, which also corresponded with peak abundances in bluefish and weakfish.

Tautog and black sea bass may also be underrepresented in trawl survey data because these species tend to be attracted to hard substrates, such as rocks and man-made structures like piers and pilings. By necessity, trawling is conducted in flat, open areas with little hard substrate (which would tend to snag a net). Bridge piers and pilings offer an excellent hard

substrate which would likely serve to concentrate tautog and black sea bass. Anglers fishing from a pier at the Old Jamestown Bridge Site would quite likely encounter higher densities of tautog and black sea bass in the immediate vicinity (due to the Jamestown-Verrazano Bridge and the pier itself) than the trawl data might suggest, and therefore may be more likely to catch these species. Unfortunately, it is difficult to quantitatively estimate how concentrated tautog and black sea bass may be around the piers. Trawl surveys, the most typical source of quantitative fishery data, as noted above are not practical in this environment. Mark and recapture studies and visual counts by divers may sometimes be used for this type of quantitative data, though no such studies are available for the Old Jamestown Bridge Site.

To give some perspective on the potential scale of fish concentration which may occur around hard substrates, rough calculations of cunner densities may be examined. Cunner are related to tautog and also tend to congregate around hard substrates. Sand (1982) provided data using visual counts on maximum cunner densities in rocky habitats of Narragansett Bay equivalent to 3.9 fish/m². From 1979-1983, the same general time period of Sand's study, RIDEM seasonal trawl surveys sampled approximately 27 cunner per tow, equivalent to 0.003 cunner/m². Comparing Sand's visual density estimates to trawl survey estimates, yields a hard substrate concentrating factor of over three orders of magnitude compared to open waters sampled by a trawl. It should be cautioned that these numbers are highly generalized. Furthermore, cunner are typically much more ubiquitous in general than tautog or black sea bass and therefore likely show greater density concentration. These calculations do however highlight the likelihood that the hard substrate of bridge piers likely acts as a concentrating mechanism for several important recreational species; therefore the trawl data may not accurately reflect the true abundance anglers may encounter at the Old Jamestown Bridge Site or other sites under evaluation for potential fishing pier development.

In conclusion, spring and summer clearly offer the best season for catching high quality fish at the Old Jamestown Bridge Site, though quality fishing for striped bass, bluefish, and tautog in the lower bay has been known to extend into October. While scup and squid appear to be the most ubiquitous species present, all of the important recreational species, with the exception of striped bass, appear to be well represented at this site. Limitations with the trawl survey data may tend to bias the data towards certain species (e.g., squid and scup) and under-represent others (e.g., striped bass, bluefish, weakfish, tautog, black sea bass). Despite these limitations, the trawl data does provide an excellent basis to compare potential fishing quality between months and seasons within an individual site, and between different sites, as any biases inherent in the data will be consistent.

3.0 SOCIAL IMPLICATIONS

Of primary importance in the analysis of public fishing pier development at the Old Jamestown Bridge Site is the effect such development would have on certain individuals and groups. The intent of this development should be to provide the greatest public benefit while avoiding or minimizing adverse impacts (to the environment, potentially affected social groups, etc.) to the greatest extent possible. The following list contains those parties believed to be the principal stakeholders in the development of a recreational fishing pier at the Old Jamestown Bridge Site:

1. Other land and water uses in the immediate vicinity of the site (abutting residential neighborhoods and beach clubs)
2. Potential users of the site (recreational anglers)
3. The Town of North Kingstown
4. The State of Rhode Island

For each of the above groups, a brief summary of their relation to the potential development of a fishing pier and park at the Old Jamestown Bridge Site is provided, including each group's concerns and the potential impacts to that group by development. Two excellent primary sources were analyzed in identifying the concerns of these stakeholder groups. As noted in the study overview, the Draft Supplemental Environmental Impact Statement (SEIS) for the Jamestown Bridge Replacement Project provided for a public hearing and public comment period through which individuals, agencies, and organizations could comment on the SEIS and the project to remove the Old Jamestown Bridge. While outside the scope of the SEIS, many individuals and groups nonetheless used this forum to express their opinions and concerns regarding the future development of the Old Jamestown Bridge Site in North Kingstown. As part of the public record, both the transcript of the March 27, 2003 public hearing and written comments submitted to the RIDOT were reviewed in developing the summary information provided below.

Additionally, permit requirements for the U.S. Army Corps of Engineers application for the Old Jamestown Bridge Demolition Project required that the RIDOT address the actions of bridge removal, the disposition of certain materials as artificial reefs, as well as the retention of a portion of the trestle for future development as a fishing pier. The Army Corps application also provided for a public comment period in April 2003, through which the North Kingstown Town Council submitted formal comments regarding the future of the Old Jamestown Bridge Site (see Appendix F). These comments and the responses by the RIDOT thereon were also reviewed to identify concerns on and potential impacts of development of the Old Jamestown Bridge Site.

It should be noted that these comments from both of the above sources were made prior to (a) bridge inspections revealing that the trestle is structurally deficient, (b) the SEIS Record of Decision, which determined that the entire bridge structure should be removed, and (c) though not acted upon, the introduction of legislation in 2005 to repeal R.I. General Law § 24-12-51.1. Most all of the sentiments expressed do however remain valid in the evaluation of the potential future development of a public fishing pier at the Old Jamestown Bridge Site.

1. *Other land and water uses in the immediate vicinity of the site (abutting residential neighborhoods, beach clubs).*

This stakeholder group includes the residents of the North Kingstown neighborhoods both north and south of the bridges and the private recreational beach clubs along the West Passage shoreline, all which stand to be directly affected should a public fishing pier be

constructed. Members of this group are generally opposed to the creation of a fishing pier and park at the Old Jamestown Bridge Site. Many of those commenting asserted that development of a public recreational facility would not be appropriate in a predominantly residential area. Accordingly, they asked that the State consider removing the bridge in its entirety. Primarily due to past misuse of the Old Jamestown Bridge, there exists a perception amongst abutting residents that if built, such a facility would not be designed, operated and maintained properly. The main concerns of this group on the possible future development of the Old Jamestown Bridge Site consist of the following:

- Cleanliness and Maintenance: trash removal and general upkeep; provision of sanitary facilities (bathrooms); measures to mitigate littering, vandalism and fishing waste; and site aesthetics;
- Safety and Security: general park management and security (e.g., whether a park ranger/manager will be on-site during hours of operation), the proposed hours and seasons of operation, and provisions for lighting;
- Access and Parking: whether adequate parking will be provided, and if the landside site is large enough to provide adequate parking; whether direct access to/from the site will be provided via Route 138, and what measures will be provided to ensure that local residential streets will not be used for parking and access to the site;
- Long-term Commitment: whether the State can commit resources and funding to ensure the long-term maintenance and upkeep of a public fishing park.

2. Potential users of the site (recreational anglers).

Many individuals and recreational fishing organizations/associations were vocal in their support of a public recreational fishing pier. Those commenting from this group noted that as the "Ocean State," Rhode Island is currently lacking in both the quantity and quality of access points to shoreline fishing. Many also cited the fact that the State does not own or operate any pier facilities for the purpose of enhancing the public's access to shoreline fishing opportunities, and that most shoreline locations currently used by recreational anglers lack many of amenities (adequate parking, sanitary facilities, etc.) conducive to an enjoyable fishing experience.

Members of this group asserted that, if managed properly, a recreational fishing facility at the Old Jamestown Bridge site would provide a long-term benefit for the general public. The following reasons were offered:

- the location of the Old Jamestown Bridge trestle would offer access to high quality fishing and deeper waters not currently offered by other shoreline sites;
- a public fishing pier at the site would greatly improve quality recreational fishing access for underprivileged social groups, particularly persons from urban communities, persons with disabilities, and persons lacking boat access;
- development of a public fishing pier at the site would have an overall positive impact on tourism and recreational fishing-related economies in the State.

A subgroup of potential users not represented through public comment processes is the Southeast Asian fishing community. As a major ethnic constituency of many Rhode Island communities, Southeast Asians comprise a significant subgroup of shore-based anglers that is likely to be underrepresented in public forums due to language and cultural barriers. Many Southeast Asian residents engage in shoreline fishing for both consumption and recreation. More information on fishing and consumption characteristics of the Southeast Asian fishing community can be found in the RIDEM white paper entitled Public Perception Of Fish Consumption Issues Among Southeast Asians In Rhode Island (2005).

Potential users of a recreational fishing pier may also include non-anglers. If built, such a facility would offer excellent sightseeing opportunities and enhance the general enjoyment of the West Passage environment. Both porpoise and seals are known to seasonally inhabit the waters of the West Passage (November through May, September through April, respectively), and the Rome Point vicinity (approximately 1.5 miles north of the site) is one of the most popular seal haulout locations within Narragansett Bay. While the passive interest of non-anglers was reflected by the small number of comments received from this subgroup, the Audubon Society of Rhode Island did voice support for the development of a recreational pier facility at the Old Jamestown Bridge Site.

3. *The Town of North Kingstown.*

As the municipality in which the development of a public fishing pier and park is under consideration, the Town of North Kingstown has a considerable interest in the future of the Old Jamestown Bridge Site. While such development is intended to be for the benefit of the general public (both within and beyond the town), the municipality and its inhabitants are fundamentally more susceptible to the potential impacts of development, both positive and negative. The North Kingstown Town Council is charged with representing the interests of town residents and taxpayers.

Based on the formal comments submitted on the U.S. Army Corps of Engineers Permit application, the primary concerns of the Town of North Kingstown are as follows:

- that the State of Rhode Island be fully responsible for the operational and fiscal management of the fishing pier and park (day-to-day and long-term);
- sources of funding for project construction, park operation, and maintenance;
- the timeframe for design and construction;
- the potential for impacts to nearby residential neighborhoods;
- means of user access to and from the site;
- provisions for adequate parking and bicycle access;
- sanitary facilities, including trash receptacles and wastewater facilities, and the maintenance thereof;
- park management, including security, hours of operation, and measures to minimize vandalism, public/emergency telephones, designation of the park as an alcohol and drug-free area;

- day-to-day and long-term maintenance of pier and park facilities;
- provisions for amenities including landscaping, picnic tables, vendor licenses for bait sales.

4. *The State of Rhode Island.*

Within a broader context, the State of Rhode Island is also a principal stakeholder in the potential development of the Old Jamestown Bridge site as a recreational fishing facility. As such a facility would be owned and operated as a state park, its operation and maintenance costs would be borne by state funding. While it is reasonable to believe that the benefits offered to the public through enhanced recreational fishing opportunities would outweigh these operation and maintenance costs, creation of a public fishing park would require an additional allocation of funds within the state budget, potentially impacting and the State and its constituents providing the tax base. Additionally, adequate funding is necessary to properly design and construct pier and park facilities in a manner which mitigates the potential adverse impacts of such a development. In responses to comments from the Town of North Kingstown, the RIDOT has indicated that federal assistance may be available for pier and park construction.

If properly designed, managed, and maintained, the creation of a recreational fishing pier would improve the public's access to and enjoyment of Narragansett Bay. Developing and enhancing public recreational opportunities is a fundamental component of Rhode Island's Comprehensive Outdoor Recreation Plan (State Guide Plan Element 152), which states "Providing for the public's enjoyment of Rhode Island's outdoor environment is an important responsibility of state government." The State's economy, image, and well-being of its residents would stand to benefit from the creation of a public fishing pier, and the success of such a facility could eventually make it an icon for Rhode Island and Narragansett Bay.

While not principal stakeholders, the following parties should also be given consideration in the evaluation of the Old Jamestown Bridge Site, as they may be indirectly affected by the proposed fishing pier development.

- *Businesses supporting / supported by recreational fishing and related activities, including tourism.* Development of the Old Jamestown Bridge Site would likely result in a net benefit to commerce in surrounding communities, especially to those businesses related to recreational fishing such as bait and tackle shops. Site visitors desiring food, supplies, or other goods would be likely to visit stores and restaurants in the nearby commercial centers of Wickford and Jamestown. Already major tourism destinations, the attractiveness of both South County and the City of Newport would be enhanced by the addition of a public recreational feature in their greater vicinity. As there are no similar competing uses (i.e., other public recreational fishing facilities) within the extended study area, development of the Old Jamestown site would not be expected to adversely impact existing economies related to recreation.
- *Commercial fisheries.* Since Narragansett Bay is a vital harvest area for the commercial fishing industry, consideration of the impact of pier creation within the West Passage is warranted. The development of a recreational fishing pier at the Old Jamestown Bridge Site is not however believed to be a competing use with commercial fisheries. Construction of a fishing pier at this site would not interfere with existing commercial trawl routes, as the Old

Jamestown Bridge trestle has occupied this location for over sixty years. Additionally, the take (quantity of fish caught) of a recreational pier in this location is unlikely to be of an appreciable quantity that would adversely impact commercial fisheries.

- *Commuters using transportation facilities.* As previously noted, construction of the Jamestown-Verrazano Bridge and State Route 138 included the partial construction of ramps providing direct access to and egress from the Old Jamestown Bridge site via Route 138. Given the potential for adverse impacts to the residential neighborhoods which flank the site, it is imperative that local roads are not used for public access to the site.

Visitors traveling to and from the site would consequently contribute to traffic volumes along this limited access highway. While the scale of fishing pier and park appropriate for the subject site would not be expected to significantly contribute to traffic along Route 138, the potential does exist for the additional traffic generated to adversely impact current users of this freeway and the Jamestown-Verrazano Bridge. This is particularly relevant to tourism and visitor traffic during the summer months, as peak usage of a public fishing pier would likely coincide with higher traffic volumes to and from Newport and Jamestown. Accordingly, a formal traffic impact study may be required should the State proceed with the design of a public fishing pier and park at the site.

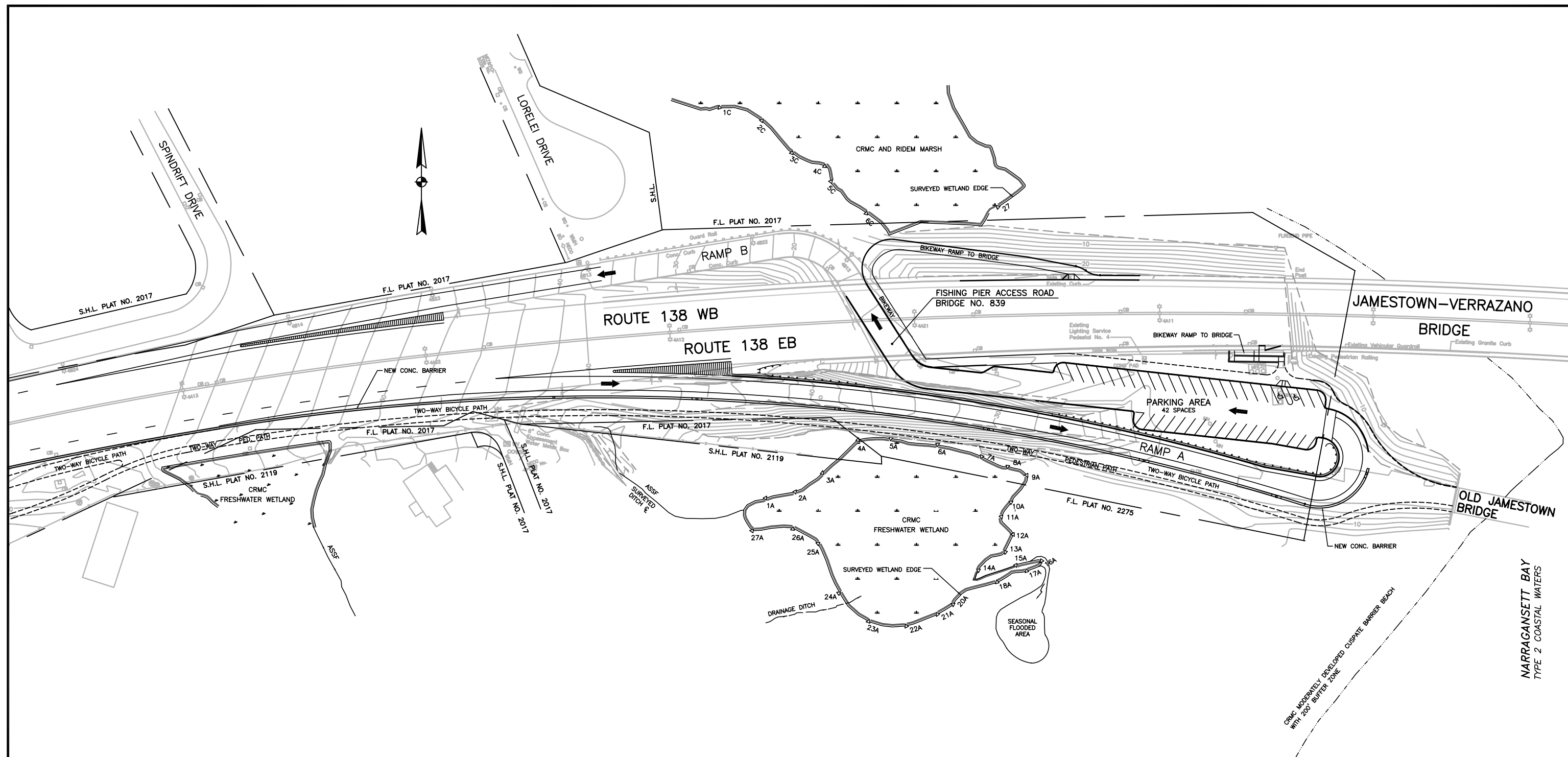
4.0 INFRASTRUCTURE AND PRELIMINARY DESIGN CONSIDERATIONS

Integral to the success of a proposed fishing pier is the proper planning and design of such a facility. The concerns of potentially affected parties, needs of potential users, and constraints of the subject parcel must all be considered when determining the suitability of the site, the scale of development, and what amenities should be included. While the analyses provided are preliminary in nature, each of the following considerations discussed in this section should be carefully evaluated in determining (a) the suitability of the Old Jamestown Bridge Site and (b) if developed, what elements should be incorporated in a final design of the site.

During the design and construction of the Jamestown-Verrazano Bridge, the RIDOT developed conceptual plans for the future build-out of the Old Jamestown Bridge Site as a public fishing pier and park, a schematic of which is provided in Figure 11. It is important to note that the preliminary RIDOT design concept was developed over ten years ago and does not represent any presently proposed action by either the RIDOT or RIDEM. Rather, this preliminary site design concept is referenced only as a baseline for the evaluation and consideration of design elements discussed in this document.

Principal features included in the preliminary design concept consist of:

- *Two freeway ramps* providing motor vehicle access to and from the site: access to the site via an off-ramp along Route 138 Eastbound (Ramp A) and egress from the site via an on-ramp to Route 138 Westbound (Ramp B). Both ramps (including Bridge No. 839) were partially built in the construction of the Jamestown-Verrazano Bridge and the upgrading of State Route 138.
- *A parking area* providing space for approximately 42 passenger vehicles, including provisions for persons with disabilities.



APPROXIMATE SCALE



Gordon R. Archibald, Inc.
Professional Engineers

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
EVALUATION OF THE
OLD JAMESTOWN BRIDGE SITE
PUBLIC ACCESS TO SHORELINE
RECREATIONAL FISHING IN NARRAGANSETT BAY

**OLD JAMESTOWN BRIDGE SITE
PRELIMINARY RIDOT DESIGN CONCEPT**

FIGURE 11

- *Bicycle and pedestrian paths* within the Route 138 right-of-way connecting the site to the park and ride lot at the Route 138 / Route 1A interchange. The length of each path from the park and ride lot to the site is approximately ½ mile. Where these paths run directly adjacent to the Route 138 shoulder and Ramp A, the preliminary design called for a concrete median barrier for the separation of motor vehicle and bicycle/pedestrian traffic.
- *Two bikeway ramps* providing direct access to the Jamestown-Verrazano Bridge walkway and shoulders, providing bicycle and pedestrian access to Jamestown across the West Passage.

While not depicted on Figure 11, the preliminary design concept also included standard site design elements such as signing and striping, lighting and electrical service, storm water management, etc. It should also be noted that the preliminary design concept assumed that the Old Jamestown Bridge trestle would be rehabilitated for conversion to use as fishing pier. Since this is no longer feasible due to the deteriorated condition of the structure, any future development of the site would involve the construction of a new pier structure.

An excellent primary source for the planning and design of recreational fishing facilities is the Design Handbook for Recreational Boating and Fishing Facilities developed by the States Organization for Boating Access (SOBA). The SOBA Design Handbook document provides guidance for the design and management of such facilities, including extended discussion of considerations discussed in this report, particularly regarding accessibility, amenities, and operation and maintenance. Should the State proceed with the development of a shoreline recreational fishing facility at the Old Jamestown Bridge Site or elsewhere, it is recommended that the SOBA Design Handbook be utilized.

4.1 Anticipated Demand and Use

The anticipated demand and usage of a public fishing pier at the Old Jamestown Bridge Site is of great importance in determining the appropriate scale of development. Ideally the fishing pier, parking, and related amenities should be designed to adequately accommodate the present and future demand for such a facility, as well as allow for future expansion measures should actual demand be greater than expected.

The true demand of a recreational fishing facility such as that under consideration at the Old Jamestown Bridge Site is by nature very dynamic and difficult to quantify. Unlike restaurants or shopping centers, for which a great volume of traffic data has been collected and analyzed by the Institute of Transportation Engineers (ITE) so that planners and engineers can estimate peak demand and model trip generation in designing proposed facilities, very little (if any) such data has been collected for recreational fishing piers. Furthermore, the number of visitors to a pier on a given day or at a given time is dependent upon a wide range of factors working simultaneously, many of which involve highly variable ambient conditions such as the weather and the migratory behavior of fish species. Such primary factors affecting the expected use of a fishing pier at the Old Jamestown Bridge site consist of the following:

- *Recreational Fisheries Quality.* Demand and interest of the site will hinge primary by the quality both (generally and temporally) of recreational fisheries to which the site provides access. Independent of other factors, base attendance will be directly proportional the quality of recreational fishing that the bay location provides relative to other shoreline locations throughout the bay (i.e., the likelihood of catching fish of high recreational interest

or value). This base interest will also fluctuate during the year, depending upon the fishing season and migratory runs of species of recreational interest through the West Passage.

Demand for a pier by recreational anglers is analogous to demand for a stadium by fans of a professional sports team. If the team (fishing) consistently performs well, then fan interest will be high regardless of the quality of the stadium (fishing site). This is apparent by those shoreline sites throughout Rhode Island that, while offering few amenities comparable to pier fishing, are nonetheless popular due to the quality of recreational fishing at the site. Likewise, the most well designed, well-constructed stadium (a fishing pier) will not be well-attended if the team (fishing) performs poorly on a consistent basis.

- *Land Location / Distance from Site.* The location of the site within the surrounding transportation network will influence the whether anglers throughout the state and beyond will visit the site to fish. As previously noted, the Old Jamestown Bridge Site is located directly off of an arterial freeway (Route 138) which itself is connected to other major roadways via interchanges at Routes 1 and 1A. This location of the site within the surrounding freeway network is advantageous in that the site would be more readily accessible to a greater number of individuals, many of whom may be from inland and/or urban locations which do not offer recreational fishing opportunities. While individual anglers' interest will diminish with distance from the site, the availability of alternative shoreline access points will also influence attendance at the pier. For example, a person in Warwick may choose to drive 5 minutes to a nearby shoreline feature offering a comparable level of quality fishing rather than driving 20 minutes to the Old Jamestown Bridge Site.
- *Facility Design and Amenities.* Attendance at a recreational fishing pier will also be affected by the quality of pier and park infrastructure and other elements which contribute to an enjoyable fishing experience. A site offering features such as ample parking, benches, restrooms, on-site sales of bait and tackle, concessions, trash receptacles, cutting boards, and pleasant landscaping will be more popular than one that does not. The design of the pier structure itself is also a significant factor influencing public interest in the facility. Whether the pier is of adequate length to provide quality access to deeper waters (and quality recreational fisheries) and whether available rail space is sufficient to accommodate the number of individuals fishing (capacity) will both weigh heavily in an individual angler's decision to frequent the facility.
- *Weather.* Day to day usage of the pier will fluctuate with weather conditions, as sunny, mild days would be expected to yield greater attendance than colder, rainy days. The number of users of the facility will also vary with the seasons of the year, as peak monthly attendance can be expected during the summer months, especially as this time coincides with student vacation as well as the high tourism season in Newport and throughout Rhode Island. Conversely, minimal interest is expected during the winter months as cold temperatures, winds along the bay, and the absence of most recreational fish species will result in little to no demand for fishing at the site.
- *Day of Week and Time of Day.* As pier fishing is primarily a recreational activity, individuals can be expected to visit the site during their respective non-working hours. For most working individuals these times are primarily weekday evenings and weekends, both times of the week during which higher attendance can be expected. As with other public recreational facilities such as beaches and parks, peak weekend attendance will likely occur during the daytime (morning and afternoon) when a greater number of people choose to enjoy outdoor leisure activities. Many devoted recreational anglers choose to fish at night

as well, and certain recreational species are more active at this time and sites (if open and accessible) are generally less crowded.

- *Capacity.* While an aim of the facility design is to provide adequate capacity for the expected demand, the actual built capacity will have a limiting effect on the attendance at a public fishing pier. Recreational anglers will be less inclined to visit the site if they routinely encounter difficulties parking and/or insufficient room to cast and enjoy fishing from the pier.
- *Fees.* Most piers in other states charge admission for access to and/or fishing from the recreational pier facilities. While this practice is typically employed to provide revenue for the pier's operation and maintenance costs, having to pay for access will deter (and in some cases effectively prevent) certain individuals from attending the site. In this respect the diminishing returns (less attendance) would be expected with higher admission charges.
- *Initial Interest.* As with other new facilities constructed for attendance by the public (such as restaurants, shopping centers, etc.) there will be an initial period after a pier's opening during which the novelty of such a facility will produce higher demand. Both anglers and non-anglers alike will be curious to investigate the facility and see firsthand what it has to offer in terms of fishing, amenities, scenic value, etc. This initial interest factor may last several months to a few years and may dissipate gradually or steeply.

With the numerous above factors in combination making it very difficult to quantify demand, efforts were focused on roughly approximating *peak* public demand for pier fishing based on the size of the pier itself. Several existing piers in Atlantic coastal states were contacted to gather general information on peak use of their respective facilities. While every pier is undoubtedly unique with respect to (a) it's location and (b) the above-described factors influencing demand, a rudimentary correlation can be established between the size of a facility and the peak usage of that facility.

Overall pier length was used as the measure of pier "size" since (a) this value is readily quantifiable, as pier owners/operators/workers are most likely to know their pier's length and (b) length is more closely related to a pier's capacity for total number of anglers (i.e., perimeter railing space) than other dimensions such as planar area or park acreage. Peak use refers to the maximum number of visitors (both anglers and non-anglers) at a given time on a day of peak attendance. This is believed to be more relevant than peak daily or weekly attendance figures in determining the scale of pier size, parking capacity, amenities, etc. Estimated values of peak use were obtained anecdotally through consultation with individuals involved in the operation of existing public fishing piers listed below. The results of these inquiries are presented in Table 2.

Table 2
Summary of Peak Use Inquiry
For Existing Piers in Other States

Pier	Location	Pier Length (feet)	Peak # of Users (est.)	Peak # of Users / Length
Ocean Breeze Fishing Pier	Staten Island, NY	835	70	0.08
George Crady Fishing Pier State Park	Jacksonville, FL	5000	200	0.04
Anglins's Fishing Pier	Ft. Lauderdale, FL	876	200	0.23
Nags Head Fishing Pier	Nags Head, NC	750	100	0.13
Skyway Fishing Pier State Park (North Pier)	St. Petersburg, FL	3800	350	0.09
Navarre Beach State Park Fishing Pier	Navarre, FL	825	150	0.18

It is important to note that these inquiries were conducted only to gain an understanding of the general order of magnitude of fishing pier demand of the purposes of this assessment. A more statistically and scientifically rigorous analysis could conceivably be conducted through field surveys and peak attendance counts at these and other piers; however, given the complex and highly variable nature of demand, it is doubtful that this would offer substantially more meaningful data and justify the time and funding required for such an endeavor. Furthermore, it is extremely difficult to account the numerous unique attributes of a specific piers such as the surrounding environment, type and quality of fishing offered, amenities on-site, admission fees, etc. For example, the Skyway Fishing Pier in St. Petersburg, Florida consists of a converted trestle portion of the Sunshine Skyway Bridge (similar to the Old Jamestown Bridge), and motor vehicles are permitted to drive and park on the $\frac{3}{4}$ -mile bridge itself. As part of a larger state park, the Navarre Beach Fishing Pier was open only from sunrise to sunset (prior to being destroyed by a hurricane in 2004), whereas the other piers contacted are open on a 24-hour-a-day basis.

The above investigation provides a general sense of the approximate peak demand associated with a pier of certain length, however this data offers limited utility in determining the scale of potential pier development at the Old Jamestown Bridge Site (including pier length, required parking, amenities, etc.). While the above analysis helps to establish a rudimentary correlation between pier length and peak demand, this relationship is by no means causal. For example, assuming a reasonable value of 0.15 for the peak number of users at a given time per length of pier, a 1,000-foot pier have approximately 150 visitors at peak use. Pier length is a design parameter: a pier should ideally be sized to accommodate anticipated use, access quality recreational fisheries, and provide for an enjoyable fishing experience. It would therefore be inappropriate to assume a pier length as a means of anticipating peak demand. Conversely, the relationship cannot be readily used to determine the appropriate pier length based on peak demand; as previously discussed, the fundamental factors affecting demand are numerous, highly variable, and cannot be readily quantified.

While it is reasonable to project that maximum attendance would be on the order of roughly one hundred visitors at a peak time and a few dozen individuals during typical operation, the true demand for a public fishing pier at the Old Jamestown Bridge Site will not be known until such a facility is actually constructed and opened to the public. In assessing the Old Jamestown Bridge Site, a more pragmatic approach is necessary to negotiate demand and capacity. Discussed in subsequent sections, the constraints inherent in the site (parcel size, natural features, access) would be the greatest determinant in the design of a recreational fishing pier and park at the subject location.

Should a public fishing pier be developed at this location (or other location within Narragansett Bay), the collection and recordkeeping of attendance data is highly recommended. This information would provide more meaningful baseline data on demand and usage should the state wish to consider future recreational fishing developments at other locations.

4.2 Site Constraints and Scale of Development

The dual objectives in determining the scale of the landside infrastructure and the pier itself are to (a) accommodate the anticipated number of visitors to the site and (b) provide for an overall quality fishing experience. As with all site development projects, the constraints of the subject parcel will greatly govern the design of the facility.

The greatest constraint of the Old Jamestown Bridge Site is the limited area suitable for development. Excluding the ramps, the maximum buildable area within the Old Jamestown Bridge site is slightly less than 1 acre. This figure may also be overestimated due to the environmental restrictions of the parcel and surrounding area. Given the site's direct proximity to the coastal feature (i.e., the West Passage shoreline) and freshwater wetlands, development of the site as a public fishing pier and park will require a Coastal Assent from the Rhode Island Coastal Resources Management Council (CRMC) and may also be subject to the requirements of the Rhode Island Pollutant Discharge Elimination System (RIPDES). The location of the site in a predominantly residential area may also require spatial and landscaped buffers between uses. All of these factors combine to limit the available area within the site for parking and other amenities which are integral to the proper functioning and the public's enjoyment of a recreational fishing pier.

Pursuant to environmental authorizations, development of the site would also need to provide for proper drainage design and storm water management. Again, given the limited, environmentally sensitive area to work within, conventional means of mitigating peak storm water runoff from impervious surfaces (such as detention ponds) are unlikely to be feasible. While drainage structures could tie-in to existing water quality inlets located on-site, additional alternative design measures (such as a crushed stone or porous pavement driving surface) may be necessary.

Another prominent feature of the site that would have to be addressed in the design of the site is the presence of steel sheeting installed for the construction of the fishing pier access road bridge (Bridge No. 839, see Figure 12B). Though not intended as a long-term means of earth support, this steel sheeting currently supports the grade separation between access Ramp A and egress Ramp B. The preliminary RIDOT design concept called for the construction of new structural retaining walls along both sides of Ramp A to accommodate the grade descent from Route 138 freeway. The logistics and cost of both removing the existing steel sheeting as well as constructing retaining walls to support Ramp A both affect the viability of the Old Jamestown Bridge Site for development.



Figure 12A (left). Current condition of the landside area as viewed from the Old Jamestown Bridge abutment. The significant growth occupying the area of Ramp A (left side of photo) will be cleared for the Old Jamestown Bridge Demolition Project as the site will be used as a staging area.

Figure 12B (right). Temporary sheeting has remained in place since the construction of the access road bridge (Bridge No. 839). This sheeting currently supports the grade separation between Ramp A and Ramp B. (GRA Photos)

Compared to the inherent constraints of the landside site, far greater flexibility is offered in determining the appropriate scale of the pier structure. Since the SEIS Record of Decision stated that the area of the Old Jamestown Bridge trestle (from the West Abutment to Pier 28W) will be retained for potential future recreational fishing use, a new pier could potentially be constructed within the Old Jamestown Bridge footprint to the length of existing Pier 28W, a distance of 1,650 feet from the West Abutment. Taking into consideration (a) providing access to quality recreational fisheries, (b) accommodating the use that the land infrastructure can support, and (c) the cost of construction, it may be more prudent to construct a pier of length less than 1,650 feet.

In assessing both (a) and (b) above, it is necessary to consider the logistics of pier fishing as well as the dynamics of the West Passage aquatic environment with regard to recreational fisheries. The first few hundred feet of a fishing pier clearly do not offer viable access to fishing given the very shallow water depths below. There also likely exists a practical upper limit to a pier length. A pier of greater length may not offer substantially better access to quality fishing, and the additional capacity offered by the increased length may not be necessary. In either case the additional construction and maintenance costs associated with a longer pier may not be justified.

Fishing experience with distance from shore was evaluated indirectly by examining the bathymetry in the vicinity of the bridge. Both bathymetric variation, and deeper water in general, offer more diverse and typically more favorable habitat for many of the important recreational fish species. Abrupt bathymetric variations increase the habitat heterogeneity and this often corresponds to greater species diversity and often greater abundance. Thus more varieties of fish, and greater numbers, might be expected in a region displaying strong bathymetric variations. Furthermore, abrupt changes in bottom contours will also typically result in strong current shears, fronts and rips. These variations in currents will often act to focus and concentrate suspended particulate matter; including potentially important food resources for many species such particulate organics, phytoplankton, and zooplankton. The concentration of

food resources along fronts and rips will frequently attract larger fish and thus are often particularly sought out by anglers. Deeper waters tend to provide better habitat for many recreational fish species, particularly during the summer months, because these waters are typically cooler and hold more oxygen than the very warm shallow waters.

Bathymetric data was evaluated along the length of the Old Jamestown Bridge to determine if any bottom features would be likely to improve the fishing quality with distance from shore. Figure 13 depicts hydrographic contours within the West Passage in the vicinity of the Old Jamestown Bridge Site relative to Mean Low Water (MLW). The original fishing pier concept called for the retention the existing trestle structure from the North Kingstown shoreline out to trestle Pier 28W, a distance of approximately 1650 feet. Moving out from the shoreline along the bridge, water depths are shallow (less than 5 feet MLW) for first 770 feet of bridge length (to Pier 44W). At Pier 43W the water deepens rapidly from 5 feet to 20 feet over a bridge length of approximately 55 feet. Water depths remain around 20 feet from Pier 42W to 39W (approximately 165 feet of bridge length) and then begin to shoal to approximately 15 feet near Pier 37W. Depths remain relatively constant at 15 feet over the next 825 feet of bridge length, or approximately 1925 feet from the North Kingstown shoreline, and beyond the length of the original proposed fish pier. Depths increase gradually to 30 feet over the next 2300 feet of bridge length until the deeper navigation channel (greater than 60 feet) is eventually reached at a distance more than 3000 feet from the North Kingstown shoreline.

Three primary bathymetric features stand out as potential influences on fishing experiences along the length of the former bridge. The first feature is the tongue of deeper water encountered 770 feet out from the North Kingstown shoreline. The western edge of this tongue shows a relatively steep wall which would likely create the current rip or front often associated with high quality fishing sites. The eastern side of this tongue is not as steep but may also provide enough variation to create favorable tidal rips as well. Furthermore the orientation of the tongue north to south suggests that water is likely funneled through here tidally which would further improve potential rips within this region. The second notable feature occurs approximately 1925 feet from the North Kingstown shoreline where the water starts to deepen gradually from 15 feet to 30 feet. Although this gradual slope is unlikely to create significant current rips and fronts, it does result in deeper water depths which may be more favorable habitat for fish, particularly during the summer. The third feature is the transition to the much deeper (greater than 60 feet) navigation channel which occurs around 3200 feet from the North Kingstown shoreline. Of these three features, only the first one, the tongue of deep water, occurs along the length of bridge originally proposed for conversion to a fishing pier.

Any fishing pier built from the North Kingstown shore would likely be of lesser value if it were less than 770 feet in length. At 770 feet the tongue of deep water offers the bathymetric variations and deeper waters which suggest favorable conditions for improved fishing. Prior to this tongue, water depths are extremely shallow and would likely offer relatively poor fishing opportunities. To take full advantage of the deeper tongue of water, a pier would extend approximately 1100 feet from the North Kingstown shore to capture both the west and east sides of the tongue, although the west side of the tongue would appear to be the more significant feature. Beyond the tongue, there would appear to be little value in extending the pier unless it was substantially longer. The next notable bathymetric feature is not until 1925 feet from the North Kingstown shore where depths start to increase, but due to the gradual nature of the deepening here, the significance of this transition on fishing may be questionable. As the most notable bathymetric feature, the transition to the deep navigation channel would likely offer the highest quality fishing experience, though this is more than 3000 feet from North Kingstown shoreline.

The bathymetric data suggests a fishing pier built from the North Kingstown shore should be 770-1100 feet long to maximize potential fishing quality and practicality. A pier less than 770 feet offers little access to quality fishing environment. A pier longer than 1100 feet, would need to extend an additional 1000 feet, and more likely 2000 feet, to offer significant improvements in fishing experience. It should be noted however that these are highly subjective and qualitative assessments based on indirect evidence. To quantitatively determine the numbers and types of fish one might expect with distance from shore, a detailed study or survey of the immediate area would need to be employed. If the former bridge were still open to fishing, surveys could be conducted on-site to directly determine fishing success with distance from shore. Such a survey would need to be conducted over an appropriate time scale to factor in randomness and variations due to seasonal abundance patterns, weather, time of day, fishing method and pressure, etc. Field studies employing visual counts could also be employed but would also need to address many of the same variability issues indicated above. While a more detailed field study/survey could potentially offer a greater understanding of variations in fish quantity and type versus distance from shore, it is unlikely that any such gains in confidence would be significant enough to justify the time, effort, and funding required for such an endeavor. Such studies and surveys are beyond the scope of this analysis.

The optimal pier length should also be able to accommodate the number of anglers that would be expected to fish from the pier at a given time. As previously discussed, anticipated use is

dependent on many variable factors and difficult to quantify by its very nature. Pier lengths within the above range do however appear to provide sufficient capacity for the peak number of anglers that could reasonably be expected. Assuming that viable (albeit less desirable) recreational fishing would begin at approximately Pier 48W (550 feet outward from the existing West Abutment) and that each angler would require at least 4 feet of perimeter rail space from which to fish, alternative pier lengths of 770 feet (to Pier 44W), 990 feet (Pier 40W), and 1,650 feet (to Pier 28W) would offer capacities for 110, 220, and 550 anglers respectively.

It should be noted that the above capacity estimates do not account for fishing off the end of a pier. While the original bridge rehabilitation concept called for the pier structure to simply terminate at Pier 28W (through the retrofitting of additional railing), many piers built for the purpose of recreational fishing incorporate a “T” design at the pier terminus (Figures 14A and 14B). This design provides an efficient means of increasing both overall capacity and access to higher quality fishing most often found at the seaward end of piers (where greater depths usually exist) while not increasing the pier’s overall length from shoreline. Should a public fishing pier facility be developed at the Old Jamestown Bridge Site or other location within Narragansett Bay, strong consideration should be given to utilizing a “T” design for the pier structure. Since such a design would extend beyond the footprint of the existing Old Jamestown Bridge, additional authorization would likely be required from the U.S. Army Corps of Engineers.

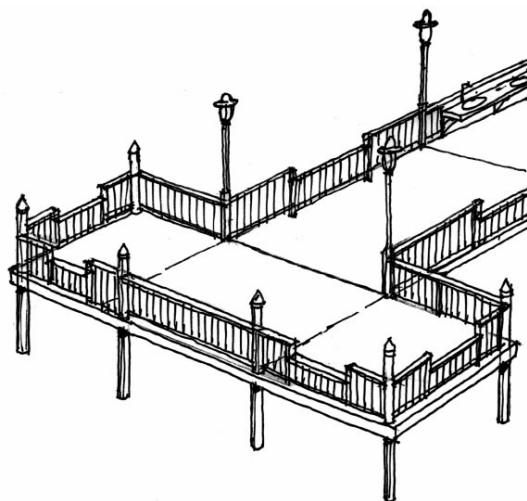


Figure 14A (left). Sketch showing a typical “T” configuration at the end of a pier. (from Accessible Fishing Piers & Platforms)

Figure 14B (right). Hoboken Fishing Pier in New Jersey, along the Hudson River. Given the pier’s short length, a “T” design was used to both increase capacity and access to deeper, more desirable fishing further from the shoreline. (website photo)

Thirdly, the cost of pier construction must be considered in determining an appropriate pier length. As part of an analysis of the potential rehabilitation of the Old Jamestown Bridge trestle spans by the RIDOT in 2003, Gordon R. Archibald, Inc. conducted preliminary cost investigations for new pier construction if the trestle were to be demolished. Since the costs of replacing the trestle bridge with a structure having identical composition would be exorbitant, two other, more cost-effective alternatives were investigated based on new pier construction practices for public fishing facilities developed in other states. The first alternative consists of a

timber superstructure built upon a concrete substructure (piles, pier caps, beams) similar to the Pensacola Gulf Fishing Pier and Juno Beach Fishing Pier constructed in Florida. The second alternative considered was an all-timber design similar to docks and piers typically constructed in Narragansett Bay and other locations throughout the Northeast. Data used in the development of these estimates are provided in Appendix E.

The preliminary cost estimate for timber deck / concrete substructure construction is approximately \$225 per square foot, which *includes* fishing pier amenities such as benches, cutting boards, and shade structures (further discussed in Section 4.4). The cost of all-timber pier construction is estimated to be approximately \$150 per square foot, *not including* fishing-related amenities. It should be noted that these estimates are rudimentary in nature and apply to pier construction *only*. Should a fishing pier be developed at the Old Jamestown Bridge Site, additional costs would be incurred in the development of the landside site (parking lot, restroom facilities, landscaping, etc.) as well as in the operation and maintenance of the facility.

Based on the per-square foot estimates developed, Table 3 presents the estimated pier construction for 22-foot wide simple span (no "T" configuration) piers of varying length. While the Old Jamestown Bridge trestle section is approximately 26 feet wide, a 22-foot width (that of the Pensacola Gulf Fishing Pier) was used as it would be ample for the purpose of a recreational fishing pier and more cost-effective based on cost per square foot.

Table 3
Comparison of New Pier
Construction Cost Estimates

Construction Type	Length (feet)	Approx. Cost / S.F.	Cost (in millions)
Timber Decking, Concrete Pile Caps, Precast Concrete Piles @ 30' o.c. (designed to withstand 100-yr. storm)	1,650 (to Pier 28W)	\$225 ⁽¹⁾	\$9.4 ⁽³⁾
	990 (to Pier 40W)	\$225 ⁽¹⁾	\$5.7 ⁽³⁾
	770 (to Pier 44W)	\$225 ⁽¹⁾	\$4.4 ⁽³⁾
Timber Decking, Timber Pile Caps, Timber Pile Bents @ 10' o.c. w/ Cross Bracing (dock-type structure)	1,650 (to Pier 28W)	\$150 ⁽²⁾	\$6.9 ⁽³⁾
	990 (to Pier 40W)	\$150 ⁽²⁾	\$4.1 ⁽³⁾
	770 (to Pier 44W)	\$150 ⁽²⁾	\$3.2 ⁽³⁾

Notes: (1) Cost includes pier amenities such as benches, cutting boards, shade structures, etc.
(2) Cost does not include pier amenities
(3) Engineering and contingencies added to obtain total construction cost, see Appendix E.

As evidenced by the above table, a significant cost savings can be realized in the construction of an all-timber structure instead of an equivalent concrete substructure pier. It should be noted that the concrete-substructure piers in Florida were built directly along the Gulf (Pensacola Gulf) and Atlantic Ocean (Juno Beach) and are therefore more likely to be subjected to severe conditions (e.g., storm surges and hurricanes) which warrant the more substantial construction materials. Given that the Old Jamestown Bridge Site is located within a relatively more sheltered bay environment, an all-timber pier structure may be more appropriate and cost-effective.

With due consideration given to each of the above factors, the most prudent length of a fishing pier at the Old Jamestown Bridge Site (should a public fishing facility be developed) is likely to be in a range of $\pm 1,000$ feet from the existing West Abutment. This length would provide access to both sides of the 20-foot MLW bottom depression in this vicinity, which as noted offers the bathymetric variations and deeper waters conducive to an improved recreational fishing experience. Quality access to this tongue of deeper water could be further enhanced through a pier design incorporating a "T" configuration. Such a pier length could accommodate upwards of 200 anglers, believed to be ample capacity for the potential peak use of such a facility.

A pier of shorter length is likely to result in a marginal reduction in quality fishing, at a tradeoff with increased construction cost savings. At lengths less than 770 feet, the potential for quality fishing is likely to drop off much more steeply. Conversely, a pier of length greater than 1,000 feet is unlikely to offer substantially better fishing, nor would the additional capacity of the longer structure be necessary, both of which would not warrant the increased construction and maintenance costs associated with a longer pier.

4.3 Site Access and Parking

Depicted in the preliminary RIDOT design concept, motor vehicle access to the Old Jamestown Bridge Site would be via a dedicated off-ramp from Route 138 Eastbound (Ramp A) and egress from the site would be via an on-ramp to Route 138 Westbound (Ramp B). Both ramps were partially built during the construction of the Jamestown-Verrazano Bridge and the upgrading of State Route 138, which included the construction of the fishing pier access road bridge over Ramp B (Bridge No. 839). Given that these ramps were only partially built and that a significant amount of time has passed since their construction (Ramp A was not paved and is now covered with significant vegetation), additional work would be required for these ramps to be put into service.

Due to the constraints inherent in the surrounding area, including existing land uses, wetlands, and the Jamestown-Verrazano Bridge, the provision of direct access to the site from Route 138 Westbound and direct egress from the site to Route 138 Eastbound are both fundamentally unfeasible. Visitors wishing to access the site from points east (including Jamestown and Newport) would have to exit at the Route 1A interchange, overpass the highway, and immediately enter the on-ramp to Route 138 Eastbound. The configuration of the Route 1A interchange is such that this movement does not require lane crossover. Additionally, should path access to the site be provided from the park and ride lot (see below), visitors from points west could optionally use this parking facility.

The narrow availability of buildable land within the Old Jamestown Bridge Site limits the total number of parking spaces that can be provided on-site. The preliminary design concept, which provides parking for 42 passenger vehicles, appears to offer the maximum number of spaces that can be provided on-site. While this space appears to be adequate to meet anticipated typical use of the pier, such demand is highly variable and the potential exists for parking demand to exceed capacity during certain peak periods. Accordingly, the site design should include provisions for overflow parking, as further discussed below.

The provision of access for pedestrians, bicycles, and individuals not having automobiles is believed to be an important element of a recreational fishing pier intended for public use. As the Old Jamestown Bridge site is bounded by residential neighborhoods, a limited-access freeway, and the waters of the West Passage, there is no immediate solution to providing such access.

Given the concerns raised by surrounding residents, direct access to the site from adjacent residential areas (as well as the beach itself) is not viable and should be restricted.

The RIDOT is currently in the preliminary stages of development of a Design Study Report for a proposed Route 138 Bike Route from the Route 138 / Route 1A Interchange in North Kingstown to Jamestown. While a separate endeavor, the Bike Route project is inherently interrelated with the potential development of a recreational fishing facility at the Old Jamestown Bridge Site in that bicycle access to Jamestown would have to be provided via the new Jamestown-Verrazano Bridge. Though several alternatives are being considered, all are generally consistent with the preliminary RIDOT design concept in that access would be provided between the site and the park and ride lot at Route 1A. Since the integration of this feature in the final design would weigh heavily in the site's effectiveness in providing the public access to and enjoyment of recreational fishing, careful consideration must be given to the potential impacts (both positive and negative) of providing path access. The apparent benefits to providing such access include the following:

- *Bicycle, Pedestrian, and Public Transit Accessibility.* The provision of paths would offer a dedicated access route to the site for bicyclists, local residents, and individuals using or reliant upon public transportation. Since paths would be constructed within the State-owned Route 138 right-of-way, the provision of such access would not require the use of local residential roads or easements. Conversely, omission of this feature from the final design would effectively deny access to the site for those potential users lacking automobiles, which would not be consistent with the project objective of enhancing the public's access to shoreline recreational fishing opportunities. Furthermore, such individuals without automobile access could be inclined to attempt accessing the site via the adjacent Plum Point and Plum Beach neighborhoods, which would create a highly undesirable condition in these residential areas.
- *Parking.* As evident in the preliminary design concept, the small land area of the Old Jamestown Bridge Site can accommodate only a limited number of parking spaces. Should the lot reach capacity, there exists no immediate area at the site to park overflow vehicles arriving to a full lot. Such potential visitors arriving at the site via the Route 138 off-ramp would either be forced to exit (effectively denied access) or otherwise attempt to park at unintended (and illegal) locations within the site such as ramp shoulders, landscaped areas, etc. If the site lot were to become routinely full during peak hours of operation, certain potential users would be inclined to park along nearby residential roads and attempt access the site by foot, which again would create a highly undesirable condition in these residential areas.

While by no means ideal, provision of path access from the park and ride lot would potentially offer a working solution to parking overflow at the site. Motorists arriving to a full lot would be directed to the Route 138 Westbound on-ramp (by signing or lot attendant), immediately exit at the Route 1A interchange, and proceed to park at the park and ride lot. Utilization of this state-owned lot as parking overflow would not conflict with its existing use as a park and ride facility for RIPTA, since peak use of this lot by commuters occurs during the work week (Monday through Friday), whereas any overflow parking for the fishing pier site would likely occur during peak use on weekends (Saturday and Sunday) and/or holidays. Furthermore, this lot is substantially large enough (approximately 170 spaces) to accommodate any reasonably expected overflow. Provision of a pedestrian/bicycle path would also offer parking and access to the fishing pier for potential visitors with oversized vehicles (such as campers and RVs) that could not be accommodated at the site lot. While

use of the park and ride lot as supplementary parking for the recreational fishing site appears to be tenable, its inclusion would require careful engineering analysis, and formal traffic studies may be required prior to committing to this concept.

Potential adverse impacts of providing a bicycle and pedestrian pathways between the site and the park and ride lot consist of the following:

- *Impacts to Adjacent Properties.* Such a bicycle and pedestrian path would be sited along Route 138 behind residential lots along Fleetwood Drive. While these parcels currently abut a major freeway, the construction and use of the path could potentially impact the character of this neighborhood. Should path access be provided to the site from the park and ride lot, it is recommended that appropriate landscaping measures be incorporated in the design.
- *Construction Disturbance and Impacts to Wetlands.* As depicted in Figure 11, a bicycle and pedestrian path would have to be sited in the immediate perimeter of freshwater wetlands which flank Route 138 corridor. While development of the Old Jamestown Bridge Site would require permit approval from the CRMC regardless of whether path access is provided, the potential disturbance within the perimeter of freshwater wetland may further complicate the permit approval process. Construction of a path along the unpaved right-of-way south of Route 138 would likely require reconfiguration of the roadside drainage system along the highway. Disturbances could be mitigated through the implementation of best management practices and appropriate landscaping design measures.
- *Safety.* Safety and security would need to be incorporated in the design of a path between the park and ride lot and the fishing pier site. The path facility would need to be shielded from motorized traffic along Route 138 Eastbound through the installation of concrete median barrier as depicted in the preliminary RIDOT design concept. Consideration should also be given to incorporating measures for security in the path design, as this area would have the potential of becoming an attractor for delinquent behavior if not properly designed or managed. If provided, lighting should be directed north, away from Fleetwood Drive properties. Other possible means of providing security along the pathway include posting and enforcing hours of access (e.g., dawn to dusk), having routine park ranger or attendant patrols along the path, and/or providing public safety call boxes along the path. Due consideration should also be given to making the paths accessible to emergency vehicles.

Given the existing land use, infrastructure, and natural features surrounding the site, there appears to be no other viable means of providing pedestrian access to the site other than constructing a path connecting the park and ride lot within the state right-of-way. It is therefore believed that, if the potential adverse impacts described above can be mitigated through prudent engineering design, the inclusion of a bicycle and pedestrian path is fundamental in providing equitable public access to the recreational fishing opportunities that would be offered at the Old Jamestown Bridge Site.

The site, both landside and the fishing pier itself, would have to be designed in conformance with the accessibility requirements of the Americans with Disabilities Act (ADA). The United States Access Board ("a federal agency committed to accessible design") has issued a guidance document entitled Accessible Fishing Piers and Platforms (2003). A copy of this document is provided in Appendix C. The Old Jamestown Bridge Site appears to be well suited for access and use by individuals with disabilities, as access to the pier would be at-grade with the parking lot walkway. Moreover, reasonable pier designs for the site would not include gangways and/or floating pier elements, and the required accessibility features can readily be

incorporated in the construction of a new fishing pier (as opposed to retrofitting features in the rehabilitation Old Jamestown Bridge trestle).

Lastly, the preliminary design also called for two bicycle and pedestrian ramp connections to the Jamestown-Verrazano Bridge. In the design and construction of the Jamestown-Verrazano Bridge, it was envisioned that this structure could be linked to the bicycle route along Route 1A (via a path constructed from the park and ride lot, described above) to provide bicycle and pedestrian access across the West Passage. As the Jamestown-Verrazano Bridge was constructed with two pedestrian walkways, one along each side of the bridge, the intent of the preliminary RIDOT design concept was to have pedestrians use these bridge walkways and to retrofit rail openings so the roadway shoulders could be used as bicycle lanes. While the RIDOT is still in the preliminary stages of development of a proposed Route 138 Bike Route, the potential development of a fishing pier should be closely coordinated with that for the Route 138 Bike Route to achieve a design that effectively integrates both facilities within the site.

4.4 Amenities

The amenities offered by a fishing pier are instrumental to the success of such a facility. Certain amenities may be considered essential to the general operation of a public pier and park, while others could be provided to enhance the public's enjoyment of recreational angling at the site. A brief discussion of the applicable amenities for consideration in the assessment of the Old Jamestown Bridge Site is provided below.

- *Utilities.* The provision of sanitary sewer, water, and lighting (electrical) would be requisite for the development of the Old Jamestown Bridge site. Restrooms are believed to be integral to the design of a public fishing pier and park. The study area within North Kingstown is not serviced by municipal sewers. Due to the environmental sensitivity of the immediate surroundings, an on-site septic system would either require careful design (and possibly alternative technologies) or may not be feasible at all. It may also be difficult to site restrooms at this location due to the limited area available within the parcel. Provision of sanitary service would possibly require pumping wastewater to a leaching area constructed beyond the site. Any septic system servicing the public pier and park would need to be sited within the State right-of-way and comply with RIDEM regulations for individual sewage disposal systems (ISDS). While generally considered less desirable, provision of portable sanitary facilities would be necessary should other wastewater management alternatives prove to be unfeasible. All sanitary facilities installed would also require a consistent cleaning and maintenance schedule.

Water service should be provided to the site for restrooms and the cleaning of pier facilities. Public water fountains would also be a welcome amenity for visitors. A water connection to the site would be feasible via Lorelei Drive or the water easement connecting to Fleetwood Drive.

If the facility were to be open after sundown or on a 24-hour-a-day basis, lighting would also be an essential element of the public fishing pier and park. Electrical service could be readily provided as the lighting along Route 138 and the Jamestown-Verrazano Bridge is serviced by National Grid (formerly Narragansett Electric). As mentioned in the previous discussion (on a possible bicycle and pedestrian pathway between the site and the park and ride lot), lighting would also serve as a deterrent for vandalism and other delinquent behavior.

- *Trash receptacles and waste management.* When the Old Jamestown Bridge was used as an informal fishing pier in the mid-1990s, its use was characterized by garbage and fishing refuse left on and around the bridge. As evidenced by public comments on the subject, there still exists a strong perception (especially among residents of surrounding neighborhoods) associating recreational fishing use with litter and a general lack of cleanliness. Maintaining a clean environment both on the pier and within the park is therefore imperative in providing a pleasant experience for visitors and harmonization with surrounding residential and beach uses.

An appropriate number of covered trash receptacles should be placed in strategic locations including within the landside area and on the pier itself. Solid waste should be removed on a regular schedule by facility operators or through a waste management contract with a private company. There does not appear to be adequate space within the site for a dumpster, nor would such a unit be appropriate for a public park facility. Accordingly, collected waste would have to be removed on a daily or semi-weekly basis. The site would also need to be cleaned of strewn litter regularly. During the SEIS public comment process, certain recreational fishing organizations offered to assist in this endeavor through an “adopt-a-spot” or similar type program.

- *Landscaping.* Proper landscaping would also be essential should a public fishing pier be developed at the Old Jamestown Bridge Site. Trees, grassed areas, and other plantings appropriate within the coastal zone would serve to temper the development of a public recreation facility within a primarily residential area of North Kingstown. While the limited size of the parcel again limits the extent to which landscaping could be provided, the design should provide for landscape buffering between the site and residential lots directly to the south.
- *Access restrictions.* A sensible design should include provisions for restricting access to the pier or the site if the facility is to be closed on a nightly or seasonal basis. Even if the pier is to be open on a 24-hour-a-day basis (hours of operation are discussed in the subsequent section), means of restricting access would provide flexibility in pier management should conditions warrant changes in the hours of operation. At a minimum, the entrance to the fishing pier should be provided with swing gates, bollards, and/or chain link fencing to restrict vehicular access, and possibly to prevent pedestrian access if the pier will be closed at night or during the winter. Should the site design call for fully restricting pedestrian access to the pier, a more sophisticated fencing system would be required. Additionally, if fees are to be collected for access to the pier (discussed in the subsequent section), the access infrastructure could be designed similar to that of a metropolitan subway (admission window, turnstiles, etc.).

If the pier is to be closed seasonally, the entire site could be closed by restricting ramp access from Route 138. This could be achieved using traffic barrels and/or other appropriate traffic management devices, and proper signage along Route 138 (similar to that used for weigh stations and rest areas) would be necessary. Alternately, the landside site could remain open during winter months, with only the pier itself closed.

- *Pier amenities.* Fishing piers around the country are typically provided with additional amenities to service the basic needs of anglers. While not essential, the following fishing-related amenities would likely enhance enjoyment of the pier by users and could easily be incorporated in the design of the pier structure.

1. The top of railings of the pier structure could be fitted with a beam or board, slanted inward (towards the pier deck) to discourage individuals from sitting and/or placing articles on them. Fishing rods leaning against a slanted rail are also less likely to break should a large fish suddenly take bait.
2. Rod-holders could be incorporated into the proposed top railing, allowing gears to be fished properly without being continuously held by the angler while also securing the rod to the pier and prevent gear from being pulled overboard by a fish. Rod-holders could be provided by simply providing 2-inch diameter holes into the top slanted railing. Holes should be provided 4 to 5 feet apart in order to give individuals adequate fishing space and to maximize the use of the available railing.
3. Bait-cutting boards could be provided on the pier to preserve railings, benches and/or other pier surfaces from being used for the purpose of bait cutting. Cutting boards are most commonly attached to the top of the bridge railing spaced approximately every 15 - 20 feet.
4. The fishing pier could be provided with a fresh water supply during the warmer months when freezing of water pipes is not anticipated. Unless an angler is using gear specifically designed for saltwater use (which is not usually the case on a pier) the corrosive qualities of salt water will quickly ruin rods, reels, and tackles. Either special faucets or those used in conjunction with fish-cleaning stations (see below) could be adapted for rinsing off gear. A supply of fresh water is also useful for washing down deck areas which may become contaminated with fish or bait wastes during the warmer months.
5. Fish cleaning stations could be provided. Several types of fish-cleaning stations are commonly used, the most popular type consisting of a rectangular stainless steel or wooden sink that slants toward a center hole for discharging fish offal. Other types include round or polygonal sinks with tops slanting to a common discharge. Water should be provided at the stations to aid fishermen in cleaning.

The CRMC *Coastal Resources Management Program* ("Red Book") states in Section 300.4 (Recreational Boating Facilities) that "No sewage, discharge, refuse, or waste of any kind may be discharged from the facility or any vessel using it." Though fish cleaning tables are not directly addressed in the Red Book, provision of this amenity would require running water, routine maintenance and cleanup, and means for disposing of larger fish remains. Should the preliminary design of the facility call for running water supply to the pier, this information should be included in a CRMC Preliminary Determination application in order to establish acceptable design parameters and management procedures for pier cleaning and fishing waste management.

6. The provision of safety equipment on the fishing pier is advisable, as a telephone line placed on the pier can provide quick access to emergency services. Emergency call boxes could also be provided at various points along the structure. Life preservers and safety ladders should also be considered in the design of the facility.
7. Benches would also enhance enjoyment of a pier by anglers and non-anglers by providing seating for rest and relaxation. Wooden or steel benches could be provided (wooden benches are typically warmer in cold weather than other types), and benches with backs are generally preferred by users to those without. Benches could be placed

back-to-back on the centerline to maximize the available fishing area or placed at a fixed distance from the railing to provide a center walkway. If emergency vehicle access onto the fishing pier is to be provided, the benches must be placed to provide a minimum travel lane of 10 feet.

8. Lighting would be an important provision if night fishing is permitted. The optimal lighting configuration is that in which the light poles are located inboard from the railings. This would serve to make the pier railings essentially barrier-free, allowing an angler engaging a large fish to move along the pier without having to negotiate around a light fixture.
9. Other non-essential amenities that could be incorporated into a pier design for the benefit of users include rain/sun shelters, regulation and information display boards, water fountains, and telescopes.



Figure 15A (left). Anglins's Fishing Pier in Fort Lauderdale, Florida. This pier contains several design elements desirable in a fishing pier, including cutting boards, center aisle benches, and trash receptacles. (*website photo*)

Figure 15B (right). Choptank River Fishing Pier in Maryland. A former bridge converted for recreational fishing, visible amenities include portable sanitary facilities, benches with rain/sun shelters, and pier lighting. (*website photo*)



Figure 15C. Hatteras Island Fishing Pier in North Carolina. While desirable amenities are provided, including benches, trash receptacles, and lighting, these elements are sited very close to railings. This allows for ease of movement along the length of the pier but reduces overall rail space for anglers. (website photo)

- *Management office / on-site sales.* Operation of a public fishing pier and park would likely require that a small office be located within the site. Given that landside space would be limited, such a facility could be incorporated into the pier itself, possibly integrated with an admission office should fees be collected for pier access.

Additionally, the provision of an on-site bait and tackle shop and/or a food and drink concession would serve to enhance the public's enjoyment of the pier experience. Several piers contacted also offer rod and reel rentals on-site, which would make pier fishing accessible for novices and non-anglers. These facilities could be operated by either the State or a private vendor through license, and the revenue generated through sales/licensing could be included in the operating budget of the pier. Again, given the dearth of available land space within the land parcel for sales, these amenities would likely need to be sited on the pier structure.

4.5 Pier Management, Park Operation, and Maintenance

Should the State wish to develop a public fishing pier at the Old Jamestown Bridge Site, the proper management, operation, and maintenance of the facility is essential to ensuring that (a) the recreational needs of the public are served and (b) that potential adverse impacts do not occur. Given the high level of concern expressed regarding commitment to the maintenance and upkeep of a public fishing pier, it is recommended that an operation and maintenance plan be developed in the design process and that the input of potentially affected parties (Town of North Kingstown, local residents, recreational anglers, etc.) be further solicited for this purpose.

Pursuant to R.I. General Law § 24-12-51.1, the facility should be managed and operated as a State Park. Even if this law is repealed and the Old Jamestown Bridge Site were to be developed nonetheless, designation of the pier and park as a State Park would ensure the State's long-term commitment to maintenance and operation of the facility and would assuage concerns raised in this regard. Primary elements that should be incorporated in the development of a management plan include the following:

- *General Maintenance and upkeep.* Programs for day-to-day and long-term maintenance of the pier facility will be necessary. For a fishing pier to remain attractive, it must be cleaned regularly. Fishing and fish cleaning are inherently messy and anglers may not be fastidious. Pieces of bait, remnants of fish cleaning, plus the usual assortment of litter are likely to accumulate. Fishing piers therefore require more constant and vigilant cleaning measures than other types of public recreational facilities, including frequent hosing, trash removal, and other regular maintenance steps. Landside elements including landscaping, drainage, and sanitary facilities must also be maintained on a regular schedule. Periodic structural inspections, as well as repairs and/or other corrective actions, will be necessary to ensure long-term viability should the State commit to developing the site.
- *Seasons and Hours of Operation.* The proposed seasons and hours of operation of a recreational pier facility would require careful deliberation. Given the unfavorable weather and relative lack of quality recreational fisheries within the West Passage during winter months, demand for pier fishing at the site would be minimal and unlikely to justify the costs of keeping the facility open. A winter shutdown of the facility (possibly during the months of December, January, and February) would therefore be worthy of consideration.

Determining the appropriate hours of operation is a far more complex issue. The large majority of other fishing piers contacted as part of this study are open and operated on a 24-hour-a-day basis, though most of these piers are located at beaches or other shoreline recreational environments (and not in the direct vicinity of private residences). Though direct access to the site would be provided via Route 138 (and potentially by path from the park and ride lot at Route 1A), local residents and beach clubs would likely object to the development of a 24-hour public recreational facility in this area.

Pier fishing by its very nature is a relatively quiet activity, and given the proximity of a major freeway and open bay waters at the site, noise impacts would not be expected. Avid recreational anglers also value nighttime access to quality recreational fishing sites, as there are fewer anglers competing for a catch and certain runs of recreational species are more prevalent after sundown.

While restricting park and/or pier access to daytime hours (dawn to dusk) would likely be more cost-efficient, certain individuals could nonetheless attempt to access the site when it is closed, creating a nuisance as well as safety and liability issues. Additional investigations and further coordination with potentially affected parties would be necessary in determining the optimal hours of operation should a public fishing pier be developed at the Old Jamestown Bridge Site.

- *Safety, Security and Vandalism.* It is recommended that a park ranger, manager, or employee be present on-site during hours of operation to report any incidents to the proper authorities. Regardless of whether the park is open or closed, the provision of lighting at night will significantly inhibit the potential for vandalism and other delinquent behavior, as such activity could easily be observed from the highway. As suggested by the North Kingstown Town Council, the pier and park should be designated (and enforced) as an alcohol and drug-free area. Design and operation of a pier facility should include measures for deterring vandalism. Structural amenities such as wood railings, benches, and trash receptacles must be designed and constructed to withstand the threat of vandalism; in this respect sturdy, attached elements are preferred to loose, light items.

- **Admission Fees.** The costs of operation and maintenance could potentially be offset by the charging of admission fees to the pier structure. All existing pier facilities in other states contacted for this study had in place some form of an admission fee schedule; typical fees to fish at these public piers range between \$1.00 and \$5.00 per person. Depending upon the pier, this fee may be for either a single admission or allow for re-entry and use of the pier for the entire day. The majority of piers contacted also offer reduced entry fees for children and senior citizens, as well as sightseers and other non-fishing visitors to the pier.

While the charging of admission can deter certain potential users from visiting the site, most recreational anglers see the value of quality recreational fishing offered by piers as justifying such admission fees. To accommodate more devoted users, piers in other states also sell seasonal passes offering unlimited access for a one-time charge. In general, the public accepts the practice of charging for admission to and/or parking at state parks, beaches, and other public recreation facilities, realizing that such fees are necessary for the proper operation, maintenance and upkeep of the facility. Should Federal Highway funds be used in the development of a recreational fishing facility at the Old Jamestown Bridge Site, the FHWA would allow for the collection of fees provided they are applied only to the annual operation and maintenance costs (Daniel Berman, FHWA Rhode Island Division, personal communication).

Rhode Island General Law § 24-12-51.1 mandates that that Old Jamestown Bridge fishing pier and park be open to the public free of charge. As previously noted, legislation to repeal this law was introduced in 2005 but was not acted upon in the 2005 Legislative Session of the Rhode Island General Assembly. Should this law be repealed through future legislation, and should the RIDEM proceed with plans to develop a public fishing pier facility at the Old Jamestown Bridge Site (or elsewhere), the establishment of admission fees should be further evaluated as a source of revenue to support operation and maintenance costs.

4.6 Costs

The cost of constructing and operating a public recreational fishing pier will weigh heavily in whether to develop such a facility at the Old Jamestown Bridge Site and/or at another location within Narragansett Bay. In the analysis of appropriate pier length for the site, construction of a 22-foot wide all-timber pier of approximately 990 feet in length (believed to represent the most appropriate length for the location) was estimated to cost 4.1 million dollars. Incorporating recommended features such as a "T" configuration and other fishing-related amenities, this cost would likely be in the range of 5 to 6 million dollars.

It is important to note that the figures above do not include development of the landside infrastructure, which would also require a significant investment. Unfortunately, estimates were not developed by the RIDOT for the preliminary site design concept. Given the wide range of site features that may be incorporated in the site design to varying extents (parking, path access to the park and ride lot, sanitary facilities, lighting, landscaping, etc.), the costs for landside site development could range from a few million dollars to greater than the cost of pier construction. Should the State further pursue development of the Old Jamestown Bridge Site as a public fishing pier and park, a more detailed construction estimate should be developed to further assess what features should be incorporated in both the pier and the landside infrastructure.

The annual operating budget of a pier facility must also be considered in a cost analysis. Since the maintenance and operation of a public fishing pier and park is likely to be somewhat more cost-intensive than that of existing state parks (in terms of cost per park acreage) given the

amount of cleaning, trash removal, structural maintenance and other upkeep required for such a facility, an anticipated operating budget would therefore be on the order of a slightly larger park. As noted previously, this operating budget could be supported in part through the implementation of admission fees to the fishing facility. The charging of admission fees to public fishing piers is a ubiquitous practice in other Atlantic States, as all pier facilities contacted as part of this study have some form of admission fee schedule in place. As noted, the repeal of R.I. General Law § 24-12-51.1 would be necessary for admission fees to be charged.

5. FINDINGS

Based on the comprehensive assessment of the Old Jamestown Bridge Site provided in this document, the following summary findings are offered to assist the RIDEM in determining (a) whether development of a public fishing pier at the Old Jamestown Bridge Site is appropriate and prudent and (b) if the site is to be developed, what considerations should be addressed and what design elements should be incorporated in the facility.

1. As they potentially affect the viability of the Old Jamestown Bridge Site for future development as a public recreational fishing pier, developments in the Removal of the Old Jamestown Bridge (R.I. Contract No. 2005-CB-035), the subsequent RIDOT project to remove the remaining trestle portion of the structure, and any future legislation to repeal R.I. General Law § 24-12-51.1 should be closely observed.
2. Through analyses of RIDEM Trawl Survey data, the Old Jamestown Bridge Site offers access to the high quality fishing that is characteristic of mid- and lower Narragansett Bay waters. Relative to the alternative shoreline access sites evaluated under the second phase of this study, the West Passage location ranked high in the abundance of recreationally important fish species and highest in species richness (number of different species). This is documented in Section 2.2 of this report and in Appendix C of *Volume II: Evaluation of Alternative Sites for Fishing Access*.
3. The parties most likely to be affected by development of the site consist of surrounding land uses (abutting residential neighborhoods and beach clubs), the potential users of the site (recreational anglers), the Town of North Kingstown, and the State of Rhode Island. As primary concerns and potential impacts were identified indirectly through public comment processes for the removal of the Old Jamestown Bridge (R.I. Contract No. 2005-CB-035), the solicitation of additional public input on the potential development of a fishing pier and park at the site is recommended.
4. The primary constraints of the site are the small parcel size, surrounding residential uses, natural features (freshwater and coastal wetlands), and limited accessibility. While none of these constraints appear to make development of the site unfeasible, additional design measures may be necessary (such as path access to the park and ride lot, landscaping, etc.) to ensure that the facility serves the recreational needs of the public and that adverse impacts are effectively mitigated. The costs of such additional measures should be considered when comparing the Old Jamestown Bridge Site to other locations within Narragansett Bay for potential recreational fishing development.
5. Given the numerous dynamic variables affecting public demand for pier fishing, the anticipated use of a public pier facility at the site is difficult to ascertain. Based on investigations of peak use at other pier facilities and the constraints of the subject parcel, it

appears that the tenable scale of development under consideration would be adequate to meet the anticipated use. Provision of bicycle and pedestrian path access between the site and the park and ride lot at Route 1A would be fundamental in (a) providing equitable accessibility to the public fishing pier for individuals lacking motor vehicle access, and (b) providing overflow parking should the on-site parking area reach capacity.

6. Through analyses of the natural characteristics of the West Passage influencing the potential for a quality recreational catch, pier capacity versus length, and estimated unit construction costs, a length of approximately 1,000 feet (as measured from the existing West Abutment) is believed to be the optimal scale for pier construction. A pier of shorter length is likely to offer reduced quality fishing (at a tradeoff with construction cost savings), while a pier of greater length is unlikely to offer substantially better fishing. As the additional capacity offered by a longer structure would also be superfluous, the increased construction and maintenance costs associated with a longer pier would be unjustifiable. Incorporation of a "T" end configuration and additional fishing-related amenities in the structural design would further enhance the public's enjoyment of the pier.
7. The amenities offered by a recreational fishing pier are an important component of the facility's design. Certain amenities, such as sanitary facilities (restrooms), water service, lighting, waste management, landscaping, and management/operation facilities are believed to be integral to the successful operation of the pier and park, while other amenities may serve to enhance enjoyment of the facility by anglers and non-anglers alike. The limited size of the landside parcel may limit the extent to which essential and non-essential amenities can be feasibly implemented.
8. Should a public fishing pier and park be developed at the site (or other location), it is recommended that an operation and maintenance plan be developed in the design process. Fishing piers by their very nature require continuous and diligent cleaning and maintenance. While the proposed seasons and hours of operation would require further investigation and public input prior to establishing a schedule, the design of the facility should offer flexibility in implementing seasonal and/or nightly closures. Measures should also be incorporated for maintaining safety and security as well as deterring vandalism and delinquent behavior (lighting, staff on-site during all hours of operation, etc.).
9. As a publicly-funded project, the proper design and construction of a public fishing facility at the subject site (both the pier and landside infrastructure) would require an investment of several million dollars. The maintenance and operation of such a facility would also require a long-term budgetary commitment by the State. The charging of admission fees is a typical practice implemented by recreational fishing piers in other states to support the operating budgets and should be considered; however the repeal of R.I. General Law § 24-12-51.1 would be necessary if admission fees are to be charged. The construction and operation costs of a potential public fishing pier at the Old Jamestown Bridge Site should be weighed against such costs for the development of a commensurate facility at other possible locations within Narragansett Bay.
10. Should the RIDEM continue to investigate the development of public fishing pier at the Old Jamestown Bridge Site through additional feasibility and/or design studies, it is recommended that a committee be established for this purpose to ensure that all potentially affected parties are involved. Such a committee should include representatives from the RIDEM, RIDOT, local communities, as well as local and statewide recreational fishing organizations.